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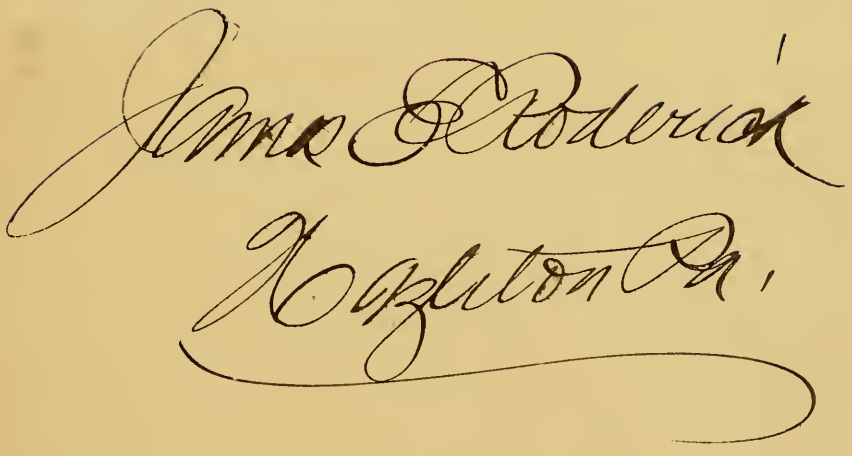


REPORTS

OF THE

INSPECTORS OF MINES

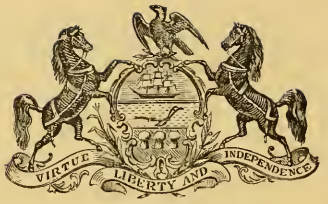
OF THE

ANTHRACITE COAL REGIONS OF PENNSYLVANIA,

FOR THE

YEAR 1883.

HARRISBURG:
LANE S. HART, STATE PRINTER.
1884.


VIRTUE
LIBERTY AND
INDEPENDENCE

REPORTS

OF THE

INSPECTORS OF MINES

OF THE

ANTHRACITE COAL REGIONS OF PENNSYLVANIA,

FOR THE YEAR 1883.

OFFICE OF CLERK OF MINING DISTRICT OF SCHUYLKILL,
POTTSVILLE, *April 3, 1884.*

To His Excellency ROBERT E. PATTISON,
Governor of Pennsylvania:

SIR: In compliance with the provisions of the second section of the act of Assembly of June 2, 1871, I have the honor of submitting the following report of the office of clerk of the mining district of Schuylkill comprising the counties of Schuylkill, Columbia, Northumberland, and Dauphin, for the year ending December 31, 1883.

By the resignation of Mr. Gaynor, my predecessor, it became necessary for the court of common pleas of the county of Schuylkill to make a new appointment to fill the vacancy caused by the resignation of Mr. Gaynor, and their choice falling upon me, I assumed the duties of the office July 1, 1883.

By the continued courtesy of all engaged in the mining and shipping of anthracite coal in this district, and the prompt return of the blanks furnished, I have been able to make my monthly reports for the information

of the Court, regularly, which reports were filed in the office of the Prothonotary for the county of Schuylkill.

The operators and coal companies have made their returns promptly, and to them much is due for the very satisfactory report I have been able to make of the tonnage of anthracite coal for this district for the year 1883, and for which they are entitled to my most earnest thanks.

I am also indebted to Mr. H. C. Troutman of the Philadelphia and Reading Coal and Iron Company, and Mr. F. B. Morris, of the Lehigh Valley Railroad Company, for the monthly returns furnished this office.

A summary of the total production of coal mined, number of employés, fatal and non-fatal casualties of the several divisions of this district, and which are detailed at length in the reports of the several inspectors, are hereto attached.

Total amount of coal shipped to market, Pottsville division,	1,759,588.17	
Consumed or sold at collieries,	95,799.00	
Total production,		1,855,387.17
Total amount of coal shipped to market, Shenandoah division,	4,579,929.15	
Consumed or sold at collieries,	274,795.05	
Total production,		4,854,725.00
Total amount of coal shipped to market, Shamokin division,	4,540,919.18	
Consumed or sold at collieries,	272,455.14	
Total production,		4,813,375.12
Total production for 1883,		11,523,488.09
Total production for 1882,		10,959,104.08
Increase for 1883,		564,384.01
Total number of employés, Pottsville division,		7,075
Total number of employés, Shenandoah division,		13,399
Total number of employés, Shamokin division,		14,588
Total number of employés for district, 1883,		35,062
Total number of employés for district, 1882,		31,966
Increase for 1883,		3,096
Average number of days worked by breaker, Pottsville division,		198

Average number of days worked by breaker, Shenandoah division,		221
Average number of days worked by breaker, Shamokin division,		206½
Average for district,		208½
Total fatal casualties, Pottsville division,	19	
Total non-fatal casualties, Pottsville division,		74
Total fatal casualties, Shenandoah division,	47	
Total non-fatal casualties, Shenandoah division,		134
Total fatal casualties, Shamokin division,	64	
Total non-fatal casualties, Shamokin division,		170
Totals,	130	378
Ratio of tons per life lost,		88,642.05
Ratio of tons per person injured,		30,485.19
Ratio of employés to each life lost,		269
Ratio of employés to each person injured,		92

The expenses for the year 1883, including salary, rent of office, light, fixtures, postage, and incidental expenses of this office, for which vouchers were returned to the Auditor General's Office, amount, to $1,710 35.

Respectfully submitted,

RICHARD RAHN,

Clerk Mining District of Schuylkill.

FIRST DISTRICT.

FIRST SCHUYLKILL DISTRICT,
OFFICE OF INSPECTOR OF MINES, POTTSVILLE.

To His Excellency ROBERT E. PATTISON,
Governor of Pennsylvania:

SIR: I have the honor of presenting herewith my Ninth Annual Report as Inspector of Coal Mines, in accordance with the twenty-second section of the general act of Assembly, passed March 3, 1870.

The matter contained herein consists of the customary forms and tables relating to accidents in and about the mines and such other general information requiring special notice. Although the number of casualties are still proportionally large, nevertheless we are glad to state that the loss of life is one less, and the serious personal injuries twenty-one less than those of the previous year. In the meantime, the out-put of coal has increased over fourteen per cent., and the number of persons employed has also increased in a similar proportion, or a fraction over nineteen per cent. It is to be regretted that the number of accidents arising from falls of coal and roof, combined with those attributed as usual to mine cars, comprises fifty-two (52) per cent. of the whole number. This proportion, in our opinion, strongly indicates that the employés are not less reckless, and that the discipline in and about the collieries has not changed for the better, as far as these two branches in mining are concerned. The next noticeable item that largely increases the list, adding another twenty-six (26) per cent., will be found under the heading "miscellaneous accidents;" these generally resulting from sources which, under reasonable care and precaution, many of them could have been avoided. Until near the close of the year we were hoping that we should be permitted to have a blank space in the report as far as fatal results from explosions of fire-damp were concerned; but about that time our anticipations were abruptly cut off in a most sad manner by a dispatch announcing that two men had lost their lives by an explosion of gas at Eagle Hill colliery. However, we are pleased to say that accidents from this source are fifty per cent. less than those of the smallest record of the district, which result, in our opinion, may be justly credited to the greater care of the workmen themselves, to better ventilation, and also to closer attention to this branch of mining on the parts of the colliery officials in gen-

eral. If they could only be prevailed upon to be just as careful in connection with the handling of mine cars as they are with fire-damp, we believe that henceforth there would be very few accidents from this source.

SAMUEL GAY.

POTTSVILLE, *March 20, 1884.* *Inspector of Mines.*

TABLE NO. 1.—*Comparative statements of fatal and non-fatal casualties between the years 1882 and 1883.*

Fatal Casualties.

	1882.	*1883.*
Explosions of fire-damp,	1	2
Falls of coal and roof,	6	6
Crushed by mine cars,	3	4
By machinery on the surface,	3	—
By machinery underground,	—	—
Falling down shafts,	—	—
Falling down slopes,	1	—
Breaking of ropes,	—	1
Explosions of blasting material,	3	1
Miscellaneous,	4	5
Totals,	20	19

TABLE NO. 2.—*Non-fatal casualties.*

	1882.	*1883.*
Explosions of fire-damp,	7	2
Falls of coal and roof,	33	20
By mine cars,	14	25
By machinery on surface,	1	2
By machinery underground,	—	—
Falling down shafts,	—	—
Falling down slopes,	1	—
Breaking of ropes,	—	—
Explosions of blasting material,	6	4
Miscellaneous,	29	19
Totals,	91	72

TABLE NO. 3—*Showing the amount of coal produced during the years 1882 and 1883 respectively:*

	1882.	*1883.*
Amount of coal shipped,	1,612,526	1,759,588
Amount of coal used or sold at mines,	96,753	95,799
Totals,	1,709,279	1,855,387
Increase for 1883,		146,108

TABLE NO. 4.—*Comparison between years 1882 and 1883:*

	1882.	*1883.*
Number of persons employed,	6,632	7,075
Tons of coal produced per life lost,	85,464	97,651
Ratio employés per life lost,	$331\frac{6}{10}$	$372\frac{7}{19}$
Number of tons mined per each personal injury,	18,783	25,072
Average number of tons per employé,	$257\frac{71}{100}$	$262\frac{5}{10}$
Ratio of employés per each personal injury, one to every,	59	97

When the increase of the out-put of coal is taken into consideration, together with the greater number of persons employed, the foregoing table of comparisons shows very favorable results for the year 1883 when compared with those of the year 1882.

TABLE No. 5 *taking the death rate per thousand as a basis of comparison between the different companies and individual operations we have the following ratios, which, in the point of safety, is in favor of the corporations.*

OPERATORS.	No. of employés.	No. of deaths.	Death rate.
Philadelphia and Reading C. and I. Co.,	3,393	8	2.358 per 1,000
Lehigh Coal and Navigation Company,	1,221	2	1.638 "
Alliance Coal Company,	382	1	2.619 "
Individual concerns,	2,079	8	3.848 "

TABLE No. 6 *showing the comparison of death rate between the several Anthracite inspection districts.*

	No. of employés.	No. of deaths.	Death rate.
Pottsville,	7,075	19	2.671 per 1,000
Shenandoah,	13,247	47	3.623 "
Shamokin,	14,588	64	4.387 "
Hazelton,	13,598	38	2.794 "
Wilkes-Barre,	20,971	80	3.815 "
Scranton,			

Ambulances.

Notwithstanding all of the past opposition against these necessary and even humane appliances, we are glad to be able to report that the district has been furnished with quite a number during the past year, several of which have been provided by the Philadelphia and Reading Coal and Iron Company, and on which neither time nor money has been spared to make them as comfortable as possible for the removal of unfortunate persons, injured at the mines, to their homes.

Prosecutions.

James Callaway, a fire boss at the Eagle Hill colliery, was arraigned before the courts, charged with failing to comply with the eighth section of the general mine law of 1870, because he had not made an examination of a certain working place on the morning of November 14, 1882. I am of the opinion that the defendant committed this serious mistake more from a lack of knowledge of what his duties imposed upon him than from any willful neglect. The place in which the defendant failed to perform his duty was quite a distance from the other working places, and only two men were employed therein cutting coal. The examining of the other portion of the workings required considerable of his time in the morning. In consideration thereof, it appears from the evidence that he had entered into an agreement with those two workmen that they should examine their own working place every morning before starting to work, each party being under the impression that, by mutual consent of the other, they had a right to make such a compact. The defendant pleaded guilty on the charge, but on account of his former good character, and upon the recommendation of the complainant, the court considered the paying of the costs of the case a sufficient punishment, considering all circumstances, and not overlooking the fact that had it not been by his own admission of guilt, or had he desired to conceal his neglect, there was no evidence to prove to the contrary.

Descriptive Record of Fatal Accidents.

ACCIDENT No. 1—February 7. Clement Scheibelhut, a miner, aged fifty-four years, lost his life by the breaking of a hoisting-rope in a new slope, which was being sunk at the Kalmia colliery. A temporary hoisting-rig was being used for sinking purposes. This rig consisted of a gin, operated by mule-power. The rope in use was of iron, five eighths of an inch in diameter. The slope dipped at angle of about thirty degrees. The sinking cars contained about forty cubic feet. Had the rope been new, the margin of strength would have been ample for safety; but, however, it was not new, but had previously been used on an inside gravity-plane in the No. 1 colliery, and had also been lying, for a considerable length of time, inside of the mine without being used. The rope itself, at the point where it broke, gave abundant proof that the usage to which it had already been subjected had quite unfitted it for further service, especially where human

life was at stake. In order to secure the sinkers (or workmen) against accidents of this character, safety drags were attached to the hind ends of the ascending cars, and the banksmen on top of the slope had to raise the drag and suspend it on a hook placed at the upper part of the car for that purpose, thus preparing the car for the descent, and on reaching the bottom it was the duty of the men below to lower the drag into its intended position before it re-ascended. But on the occasion of the accident it is quite evident that the men at the bottom failed to perform their duty; in fact, the evidence of the banksmen showed beyond question that very little use had been made of the drag, and that quite frequently the cars were sent up the slope with it in the same position as it was when sent down. It is our opinion that if the drag had been in its proper position the man would not have lost his life; but in failing to put into use that intended for their own safety the men contributed to their own dangers.

Accidents Caused by Falls of Coal and Roof.

March 22.—Bernard Keefe, a miner, aged thirty-two years, was killed by a fall of slate in the Eagle Hill shaft colliery.

Lincoln Colliery, April 18.—Jeremiah Tobias, a miner, aged thirty-one years, was killed by a fall of roof in a breast.

New Boston Colliery, July 6.—Anthony Wolfort, a laborer, aged twenty-five years, was killed by a piece of coal that fell off the corner of a pillar in a new breast which was being opened in the Mammoth vein.

Lower Rausch Creek Colliery, July 6.—John Rump, a miner, aged fifty-three years, lost his life by the rush of a large body of coal and slate, which completely buried him alive.

Kalmia Colliery, August 31.—George Daubert, a laborer, aged nineteen years, died from the effects of a broken leg. A piece of slate had fallen from the roof, and rolling down the bottom slate struck him on the leg and fractured it so badly that amputation was necessary; but it was neglected and mortification set in and caused his death.

Middle Creek Slope, October 9.—James Caffey, a miner, aged fifty-five years, died from injuries received by a fall of roof which was not sufficiently supported for safety.

Accidents Resulting from Mine Cars.

Forrestvile Colliery, June 12—Richard Taylor, an outside driver, aged fourteen years, whose duty was to take the coal from the head of the slope to the breaker, died from internal injuries received in falling off of an empty car and it running over him.

Lehigh Colliery, No. 11, November 16.—Thomas Farley, an outside driver, aged nineteen years, fell off of a dirt dumper, which, running over him, crushed his thigh so severely that it caused his death.

West Lehigh Colliery, July 28.—Wilson Franz, an inside repairsman, aged twenty-seven years, was crushed to death between a mine-car and a gang-way leg.

Fatal Results from Explosions of Fire-Damp.

EAGLE HILL COLLIERY, November 14.—Robert Kenady, aged forty-five years, and Michael Kelly, aged twenty-nine years, both miners, were instantly killed by an explosion of gas which occurred in an old Mammoth vein breast that had been worked out some time previous. At the time of the accident the two unfortunate men were employed in taking a piece off of one of the pillars in order to reach the face of the breast, which was closed by a fall of roof and coal. In consequence of this fall the top heading at the face of the breast was also closed; hence the air communication was cut off, thereby allowing gas to collect at the face of the breast. How or by what means this gas was ignited is not known; but it is quite evident that both of the victims had left the face of their working-place, and had retired into the lower cross-heading in the pillar, and, in my opinion, were sitting there, believing themselves to be in a place of safety, waiting for a fall to take place; at the same time they carried their naked lights, so that when the fall occurred a portion of the gas was driven down to the cross-heading where they sat and there was ignited, blowing them through the cross-heading into the adjoining breast with such terrific force as to crush the life out of them instantly. Mr. Charles Murray, the general inside boss, and also James Callaway, the fire boss, stated that the men had been ordered to confine themselves to the use of safety-lamps; but it appears that the order was not given very specifically, or whatever was said was in a "do-as-you-please" manner. The vein at this place is from twenty-five to thirty feet thick, and dipping at an angle of about 30°; hence, under ordinary circumstancess, it would be quite a difficult matter to keep the working faces absolutely clear of gas. Nevertheless, I am of opinion that if the discipline of the colliery had been such as the circumstances required, then the accident might have been avoided.

Premature Explosion of Dynamite.

RICHARDSON COLLIERY, May 12.—George Schultz, a tunnel man, was instantly killed by an explosion of a charge of dynamite in the tunnel in which he and several others were working. The circumstances under which the accident occurred are somewhat perplexing. The evidence of those who were working with him at the time shows that the men had drilled and charged three holes with dynamite. The hole from which the deceased met his death was charged with two separate cartridges, one placed on top of the other. When everything was ready and the fuses ignited the men retreated to the tunnel mouth. The party consisted of seven persons, each of whom testified that they had heard three distinct shots. This statement was verified, for when the men returned to the face of the tunnel they found that two of the shots had accomplished their work; the third, however, had only partly done its share, leaving the bottom portion of the hole intact. Charles Wilton, the contractor, concluded to bore the hole still deeper and recharge it. Schultz remarked that he thought one of the

charges remained in the hole unexploded. Wilton, on the other hand, thought to the contrary, and putting the jumper into the hole commenced boring it again, Schultz striking as usual. Only a few blows had been struck when the explosion took place, killing Schultz instantly and severely injuring Wilton.

Miscellaneous Fatal Accidents.

Colket Colliery, April 9.—Wilson Betz, a door-boy, aged thirteen years, was killed by a gangway collar which fell on him, an empty car having knocked out the temporary prop which had been placed under the collar the day previous.

Lehigh No. 10, August 10.—Anthony Galligher, a laborer, aged eighteen years, was crushed to death by being caught between the hoisting-cage and the timbers near the bottom of the slope. The unfortunate boy, with several other persons, was employed on the night-shift repairing the gangways. On the morning of the accident, after the men had finished their night's work, they went to the bottom of the slope and found the cage hanging, as usual, in the slope, and about eight feet above the bottom of the gangway. The man who had charge of the night-shift took charge of the signal-wire, in order to give the signal to the engineer to hoist as soon as the men were safe on the cage. At the same time, while the men at the bottom were getting ready to be hoisted up, the stable-boss arrived at the top of the slope, neither party being aware of the other's actions. However, the stable-boss was ready first, and communicated through the speaking-tube with the man in charge of the engine to learn if everything was "all right." Being answered in the affirmative, he gave the signal to lower the cage. Unfortunately, at this moment young Galligher was in the act of climbing up the side of the cage at the bottom, unsuspecting any movement of the cage without the signal being first given by the man in charge of the bell-wire at the bottom. However, the cage started on its upward course, and caught the deceased between it and the slope-timbers, crushing him to death.

Palmer Vein Colliery, September 22.—Frank Spotts, a slate-picker, aged thirteen years, was smothered to death in a dirt-chute, which conducted the refuse from the counter-screen to the dirt-pockets.

Kalmia Colliery, October 13.—John Benawrtz, an inside driver, aged twenty-two years, died from the effects of being kicked in the abdomen by a mule which he was driving.

Pine Forest Colliery, December 31.—John Shanahan, a slate-picker, aged fifty-five years, was found in an almost lifeless condition under the breaker, lying near the main belt-pulley. Whatever brought the man to this place, or how he received the injuries which caused his death, is not known. In fact, the man had been missed from his working-place for about two hours, and what had become of him was not known; but, notwithstanding his absence, no one suspected that any mishap had befallen him until found.

LINCOLN COLLIERY.—John Quinn, a door-tender, aged thirteen years, died from the effects of being squeezed between a car and platform that projected over the side of the car.

COLLIERY IMPROVEMENTS MADE DURING THE YEAR 1883.

MIDDLE LEHIGH COLLIERY.—A new slope is now being sunk on the same seam and about two hundred feet distant from the present hoisting slope, and lies east of it. This new opening will be continued down to the bottom of the basin or synclinal axes. A pair of new hoisting engines, one hundred horse-power, together with a new pumping-engine and two additional pumps to deliver the water at the surface, have been put into position; also a new breaker has been built, having a capacity of one thousand tons per day, which amount of coal the colliery officials expect to produce when they have fully completed all their arrangements.

NORTH LINCOLN COLLIERY.—A new operation that promises to be of a large producing capacity is being opened about four miles west of Tremont by the old firm of Levi Miller & Co. The new opening will consist of two slopes, sunk on what is known in that part of the coal region as the Lykens Valley No. 2. One of these slopes will be used only for the purpose of hoisting and lowering men and materials, and also for pumping out the water. The hoisting machinery consists of a pair of direct-acting engines, with cylinders 24 by 60 inches.

Lehigh Coal and Navigation Company have erected one of the twenty-one (21) foot ventilating fans of the Guibal type at their No. 12 colliery.

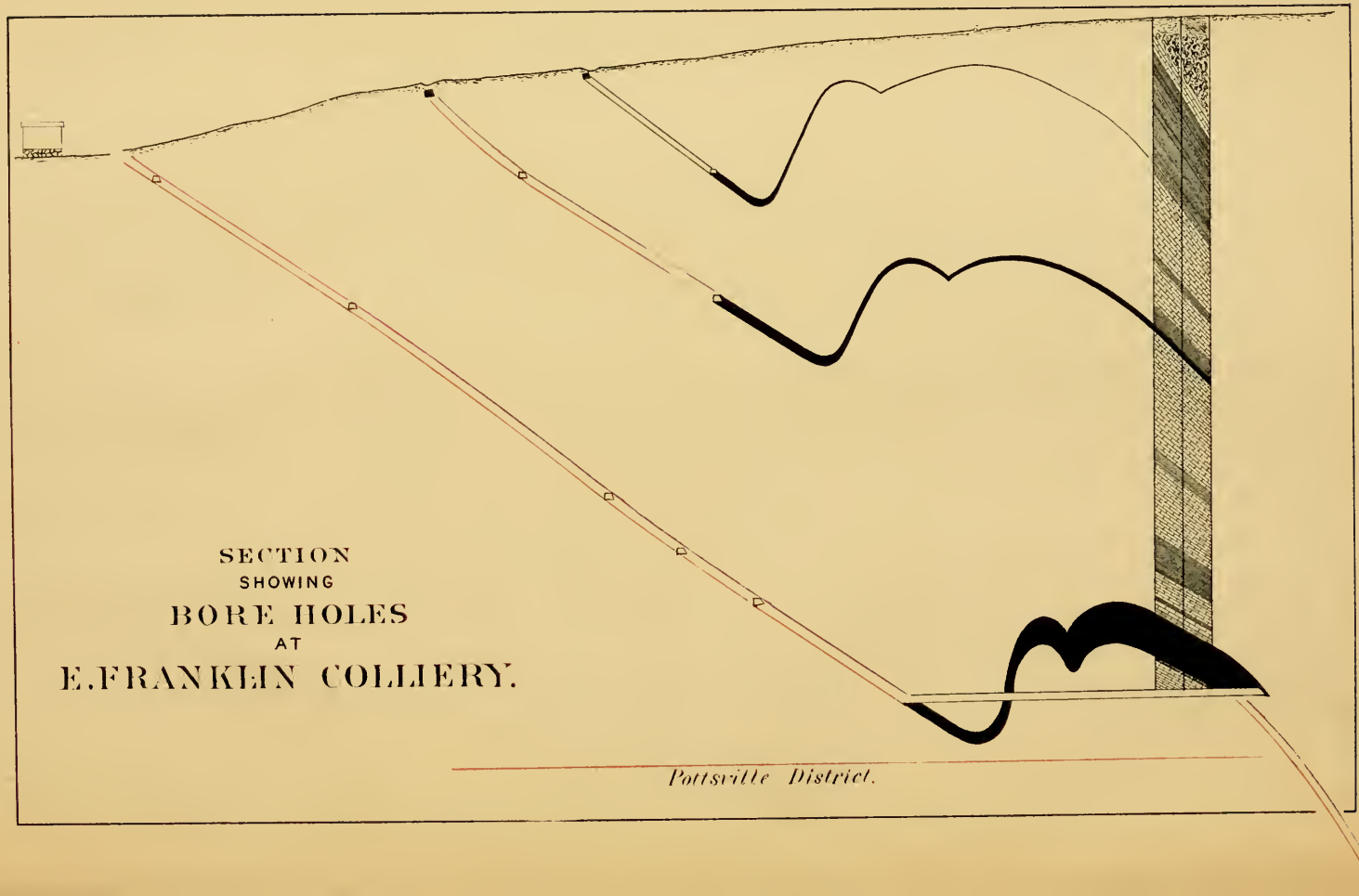
Swartz, Jones & Oliver built a new breaker on the above company's lands near Tamaqua, on the site of the old Greenwood breaker No. 2. The new concern has a capacity of about one hundred tons per day, and will be known as the Lehigh No. 13.

At the Herbine colliery a twelve (12) foot ventilating fan and one of the Sherrill-Roper air-engines of the single type have been erected.

Alliance Coal Company has erected two twelve (12) foot ventilating fans, also direct-acting engines with cylinders 10×12 inches. Also, the old Palmer vein breaker has been greatly improved by putting in an entire set of new machinery and remodeling the whole structure, thereby largely increasing its capacity.

Philadelphia and Reading Coal and Iron Company.

This company is still making important improvements at their collieries in the Heckscherville basin, the western portion of which is now free from inundation, and the old Taylorsville slope, that was flooded for a number of years, has been retimbered; also a new tender-engine, of ninety horse-power, together with two new twenty-inch Bull-pumps and sixteen new boilers have been erected, and other general improvements made. A new railroad is now under way, running from this colliery to the Richardson breaker, where the coal mined at Taylorsville will be prepared for market.


SECTION
SHOWING
BORE HOLES
AT
E. FRANKLIN COLLIERY.
Pottsville District.

From present indications, it seems more than probable that this section of the southern coal field is again going to take its proper position as one of the largest-producing pieces of territory in the Schuylkill coal fields in proportion to its area. Undoubtedly this statement will appear to many as erroneous, since this basin for many years has been looked upon by the outside public as practically exhausted. But this is a mistaken idea; in fact, this basin is still capable of producing eight hundred thousand (800,000) tons of coal per year, for at least the next twenty years, with a moderate outlay of capital, as compared with the great increase in the output toward the present amount produced, which, during the past year, amounted to about two hundred and fifty thousand (250,000) tons.

Otto Colliery.

This old White Ash colliery, mentioned in our former report, has been retimbered, and new hoisting machinery with six new boilers put in place, and the old colliery, deserted for many years, is about to commence operations anew. The breaker is also undergoing a thorough course of repairs, and new machinery of modern design is being erected. When all is finished, it is estimated that the concern will have a capacity of fifteen hundred (1,500) tons per day.

East Franklin Bore Holes.

The company is also sinking an inside slope on the Mammoth vein at the East Franklin Colliery. The hoisting machinery will be placed on the surface, the ropes passing through two holes eight inches in diameter, drilled vertically through the strata. The boring is done by the concussion drill process, similar to that used in the oil regions. The first hole is already completed, and the second is now in progress. Before the completion of the first hole considerable anxiety was felt by many who were interested in their success or failure. The strata was of a varied character, from a hard coarse conglomerate to a soft sandy slate, the pitch gradually decreasing from sixty degrees at the top to thirty degrees at the bottom, all tending to deflect the boring tool from its course, and to offer numerous difficulties to the drillers. Again the question arose, "Had the engineers in locating the holes been sufficiently accurate to make them of practical use when they were down?" The contract had already been thrown up when the work was placed in the hands of Mr. Samuel McEachen, now superintendent of the drilling department of the company. Drilling was begun on the 16th of August, and on January 10 the question was definitely settled by the drill entering the tunnel at a depth of seven hundred and fifty-two feet seven inches, being less than two inches from the calculated length, and not six inches from the line of the slope, which was down already a considerable distance. Considering the numerous obstacles which presented themselves to the drillers and the difficulties in making the survey, the work reflects great credit on Mr. McEachen and on Mr. George Patterson and his assistant, Mr. John Tierney.

Recapitulation.

Number of persons employed under ground,	4,249
Number of persons employed above ground,	2,828
Number of persons killed under ground,	15
Number of persons killed above ground,	4
Number of persons seriously injured inside of mines,	62
Number of persons seriously injured above ground,	11
Tons of coal shipped or sold,	1,759,588
Estimated amount used at collieries,	95,799
Number of steam boilers in use,	602
Number of steam boiler explosions,	3
Number of fans in use for ventilating purposes,	47
Number of breakers in operation,	46
Number of surface slopes in use,	35
Number of under ground slopes in use,	8
Number of shafts in use,	8
Number of water level openings in use,	19
Kegs of powder used,	38,826
Pounds of dynamite used,	24,545
Number of mine locomotives in use,	8
Increase in the output of coal,	146,108
Increase in the number of persons employed,	443

REGISTER OF FATAL CASUALTIES—Pottsville Division.

Date.	Number.	Names.	Collieries.	Occupation.	Age.	Married or single.	Children.	Remarks.
Feb. 7	1	Clement Schelbelhut,	Kalmia,	Miner,	54	Married,	5	Killed by the breaking of a hoisting rope.
Mar. 22	2	Bernard Keef,	Eagle Hill,	Miner,	32	Single,		Killed by a fall of slate in a breast.
28	3	John Quin,	Lincoln,	Door-boy,	13			Died from injuries received by being caught between mine car and chute.
April 4	4	Jeremiah Tobias,	Lincoln,	Miner,	31	Married,	1	Killed by a fall of top slate.
19	5	Wilson Betz,	Colket,	Door-boy,	13			Killed by a gangway collar falling upon him.
May 12	6	George Shultz,	Richardson,	Miner,		Married,	2	Killed by a premature explosion of shot.
June 17	7	Richard Taylor,	Forestville,	Driver,	14			Died from injuries received by being crushed under mine cars.
July 6	8	Anthony Wolfert,	Middle Lehigh,	Laborer,	25	Single,		Killed by a fall of coal in breast.
6	9	John Rump,	Rausch Creek,	Miner,	53	Married,	4	Killed by a fall of coal and rock.
28	10	Wilson Franz,	West Lehigh,	Repairsman,	27	Single,		Killed by being crushed between mine car and gangway timber.
Aug. 7	11	Anthony Gallagher,	Lehigh No. 10,	Laborer,	18	Single,		Crushed to death—caught between cage and timbers.
31	12	George Daubert,	Kalmia,	Laborer,	19	Single,		Died from the effect of injuries received by fall of coal.
Sept. 22	13	Frank Spotts,	Palmer Vein,	Slate-picker,	13			Smothered in a dirt chute.
Oct. 9	14	James Caffey,	Middle Creek,	Miner,	55	Single,		Killed by a fall of roof.
13	15	John Bonawitz,	Kalmia,	Driver,	22	Single,		Died from injuries received by being kicked by a mule.
Nov. 14	16	Michael Kelly,	Eagle Hill,	Miner,	29	Married,		Killed by an explosion of fire-damp.
14	17	Robert Kennedy,	Eagle Hill,	Miner,	45	Married,	6	Killed by an explosion of fire-damp.
16	18	Thomas Farley,	Lehigh No. 11,	Driver,	19	Single,		Crush under dirt-dumper on dirt bank.
Dec. 31	19	John Shanahan,	Pine Forest,	Slate-picker,	55	Married,	5	Cause of death could not be ascertained.

REGISTER OF NON-FATAL CASUALTIES—Pottsville Division.

Number.	Date.	Names.	Collieries.	Occupation.	Remarks.
1	Jan. 6	Michael Fenton,	Beechwood,	Miner,	Leg broken; struck by a piece of coal.
2	6	Silas Hoffman,	Lehigh, No. 8,	Driver,	Knee crushed; caught between spreader and car.
3	8	Phillip Gallagher,	Lehigh, No. 10,	Platform man,	Foot injured by piece of coal rolling on it.
4	8	James Bower,	Lehigh, No. 10,	Driver,	Arm broken and finger cut off; run over by car.
5	16	Frank Boyleles,	Lehigh, No. 10,	Car-loader,	Caught between cars.
6	16	George Williams,	Lehigh, No. 10,	Dirt-dumper,	Knee hurt; fell off trestle.
7	16	Charles Daubert,	Kalmia,	Loader,	Body injured; squeezed between cars.
8	24	John Miller,	Lincoln,	Driver,	Finger cut off under wheel of car.
9	29	Patrick Harkett,	Otto,	Loader,	Foot injured; run over by empty car.
10	30	Robert Wilson,	Lehigh, No. 10,	Loader,	Leg injured; caught between loose coal.
11	Feb. 15	Patrick Ryan,	Mine Hill Gap,	Miner,	Face burnt and body bruised; ignited squib instead of match.
12	26	James Brennan,	Richardson,	Laborer,	Face and neck hurt by fall of roof.
13	Mar. 5	John Helforty,	Lehigh, No. 8,	Laborer,	Leg broken; struck by wheel of water car.
14	14	Martin Shaefer,	Lehigh, No. 10,	Laborer,	Leg injured by coal rolling against it.
15	17	William T. Davis,	Richardson,	Miner,	Ribs fractured by a rush of coal.
16	23	Tim O'Herron,	Eagle Hill,	Miner,	Burnt by an explosion of gas.
17	April 12	Thomas Daubert,	Rausch Creek,	Miner,	Leg broken; struck by a piece of coal.
18	20	Phillip Landeman,	Mine Hill Gap,	Loader,	Leg broken; caught between truck and car.
19	20	Charles Ansty,	Mine Hill Gap,	Miner,	Face injured by a fall of coal.
20	20	Henry Weak,	Lehigh, No. 10,	Loader,	Injured by a fall of coal.
21	24	Charles McLaughlin,	Lehigh, No. 8,	Loader,	Mashed his finger whilst hammering a screen.
22	27	James Donden,	Kalmia,	Loader,	Squeezed between mine cars.
23	28	John Tobin,	Eagle Hill,	Miner,	Arm broken and back and ribs severely injured by a fall of slate.
24	May 4	Ivor Jones,	Richardson,	Miner,	Injured about body and arm; driven down chute by a fall of coal into gangway.
25	9	Frank Spool,	Lehigh, No. 11,	Laborer,	Foot hurt by a piece of rock coming from battery.
26	9	Arthur Tracy,	Forestville,	Miner,	Back hurt by a piece of slate falling on him.
27	11	Charles Wilton,	Richardson,	Tunnel man,	Severely injured by the explosion of a charge of dynamite.
28	15	Condy Sharp,	Lehigh, No. 8,	Laborer,	Leg broken by a piece of slate rolling against it.
29	16	John Hughes,	Glendower,	Miner,	Back and breast injured; caught by a water tank.
30	19	Pat. Devisis,	Mine Hill Gap,	Miner,	Back and face injured by a fall of slate.
31	21	Michael Gallagher,	Richardson,	Miner,	Collar bone fractured, hip and back bruised.
32	June 5	Condy Rogers,	Lehigh, No. 10,	Driver,	Slightly injured; bumped by a car.
33	6	William Naylor,	Eagle,	Miner,	Two fingers cut off by a piece of slate falling on them.
34	7	Henry Wassen,	Eagle Hill,	Slate-picker,	Arm cut off; fell under dirt cart whilst attempting to board it.
35	12	Mart Welsh,	Colket,	Laborer,	Knee joint dislocated by falling on a rail.
36	21	Arthur Morrison,	Eagle Hill,	Laborer,	Body injured by mine car striking him.
37	26	Edward O'Donnel,	Lehigh, No. 10,	Miner,	Leg broken; caught between mine car and truck.
38	July 2	William Rieger,	West Lehigh,	Laborer,	Leg crushed in roller wheels, causing amputation.
39	11	Hugh O'Donnel,	Lehigh, No. 11,	Driver,	Arm broken by falling off a car.
40	19	John Smith,	Pine Forest,	Laborer,	Head severely injured; struck by a piece of coal falling from top of gangway.
41	24	Fred. Veldhert,	Forestville,	Slate-picker,	Body and leg injured; fell off the breaker.
42	25	Max Dietz,	Otto,	Laborer,	Side injured.

43	July	28	Jacob Key,	Lincoln,	Driver,	Foot injured by mine car.
44		29	George Reese,	Thomaston,	Carpenter,	Side and shoulder injured; fell off a scaffold.
45		30	Matthew Morrison,	Lehigh, No. 8,	Driver,	Slightly injured; caught by a mule spreader.
46	Aug.	8	Adam Gressen,	Lehigh, No. 12,	Laborer,	Burnt about face and hands by an explosion of powder.
47	Sept.	6	William Hughes,	Pottsville Shafts,	Miner,	Slightly burnt by gas.
48		14	Patrick Whalen,	Glendower,	Miner,	Back injured by a fall of top coal.
49		21	William Thomas,	Pottsville Shafts,	Miner,	Leg broken; struck by a lump of coal.
50		25	James Murphy,	Lehigh, No. 12,	Loader,	Foot injured; caught by cars.
51		27	Hump Horan,	Richardson,	Miner,	Side injured; struck by a piece of coal.
52	Oct.	6	Patrick Buggy,	Phœnix Park, No. 3,	Miner,	Thigh bone broken; fell on bottom slate.
53		8	John Maley,	Richardson,	Laborer,	Face and body injured by the premature explosion of a shot.
54		8	George Lynch,	Richardson,	Miner,	Face and body injured by the premature explosion of a shot.
55		13	Adam Bergert,	Thomaston,	Miner,	Back and hip injured by falling from a wagon.
56		15	Anthony Zernfelt,	Middle Creek,	Miner,	Body and face bruised by a fall of coal.
57		15	Henry Bretz,	Colket,	Slate-picker,	Arm broken; caught in cog-wheels.
58		20	Lewis Richards,	Lehigh, No. 8,	Miner,	Injured by being caught between car and chute.
59		20	Thomas Emes,	Lehigh, No. 8,	Laborer,	Thigh and arm broken by fall of coal in a breast.
60		20	Jesse Starr,	Otto,	Laborer,	Finger mashed while spragging a car wheel.
61		22	Henry Bickelman,	Palmer Vein,	Driver,	Leg crushed, causing amputation; fell under dirt dumper.
62		23	Thomas McGann,	Swatara,	Miner,	Side bruised by a fall of coal.
63		26	Harrison A. Adams,	Kalmia,	Miner,	Severely injured by falling down manway.
64	Nov.	3	Samuel Kimmel,	Lincoln,	Miner,	Slightly injured by a fall of coal.
65		5	Michael Gannon,	Forestville,	Miner,	Leg broken by a piece of coal falling upon it.
66		13	Daniel Conners,	Beechwood,	Driver,	Arm injured; caught between top of car and timbers.
67		21	Arthur Hunt,	Mine Hill Gap,	Fan-boy,	Leg broken; struck by a piece of slate flying from a shot.
68		30	Henry O'Brien,	Lehigh, No. 8,	Laborer,	Hands slightly injured; caught between cars.
69		30	James Price,	Herbine,	Miner,	Ribs fractured; caught between two lumps of coal.
70	Dec.	7	John Barlow,	Pine Forest,	Miner,	Leg broken; caught between lump of coal and prop.
71		11	Lawrence Kelly,	Thomaston,	Starter,	Ribs fractured by falling down a chute.
72		21	Martin D. Brennen,	Glendower,	Laborer,	Leg and body injured; fell from a truck and barrel rolled on him.
73		28	Peter Boerr,	Phœnix Park, No. 3,	Laborer,	Leg and two ribs broken; ran over by dirt dumper.
74		28	John Fulton,	East Lehigh,	Laborer,	Leg broken; caught between two cars.

NUMBER OF EMPLOYEES, COAL MINED, DAYS WORKED, &c.—*For the year ending December 31, 1883.*

COLLIERIES.	OPERATORS.	Tons of coal shipped.	Tons of coal consumed or sold at colliery.	No. of Employees.			No. of days worked by breaker.	No. of kegs of powder used.	No. of pounds of dynamite used.	Yards of tunnel driven.	No. of new boilers put in.	No. of persons killed.
				Inside.	Outside.	Total.						
Beechwood,	Philadelphia and Reading Coal and Iron Company,	4,987.07	2,000	27	11	38	32¼	240				
Colket,	do. do.	35,661.17	2,500	72	71	143	243	100	4,500	. . . .	. . .	1
East Franklin,	do. do.	13,058.02	3,000	32	20	52	99½	205	800	79	8	
Eagle Hill,	do. do.	73,872.17	2,500	199	118	317	220⅝	1,260	2,550	93	16	3
Eagle,	do. do.	28,426.09	1,500	65	95	160	153	725	100			
Forestville,	do. do.	39,213.18	1,500	90	69	159	224¾	2,050	705	7	.	1
Glendower,	do. do.	23,479.02	2,000	115	92	207	155	900	1,900	74	16	
Mine Hill Gap,	do. do.	66,988.16	4,000	159	125	284	239	2,025	1,200	. . . .	12	
Middle Creek,	do. do.	84,967.16	2,000	120	67	187	237⅙	1,175	2,200	173	. . .	1
Otto,	do. do.	32,082.05	2,500	186	88	274	198½	770	30	9		
Phœnix Park, No. 2,	do. do.	8,589.13	2,000	30	29	59	224¾	95				
Phœnix Park, No. 3,	do. do.	38,031.12	1,500	46	104	100	233½	1,140				
Pottsville,	do. do.	59,562.15	2,000	208	107	315	260½	350				
Pine Forest,	do. do.	60,023.10	3,000	158	79	237	215½	1,200	950	41	8	1
Richardson,	do. do.	66,248.15	3,500	143	94	237	239¼	2,000	4,450	14	4	1
Swatara,	do. do.	3,141.05	3,500	26	23	49	23	120	1,850	128	4	
Thomaston,	do. do.	93,840.02	1,500	271	129	400	232½	3,750	1,450	67	6	
Wadesville,	do. do.	5,240.10	1,500	63	62	125	25	50	150			
Kaska William,	Alliance Coal Company,	19,519.00	4,151	59	65	124	183⅝	300	1,400	. . . .	4	
Palmer Vein,	do.	48,292.07	5,071	163	95	258	247⅞	929	. . . .	. . . .	. .	1
Lehigh, No. 8,	Lehigh Coal and Navigation Company,	93,299.04	6,000	177	148	325	206½	420				
Lehigh, No. 10,	do. do.	107,973.18	6,000	164	154	318	190⅝	780				
Lehigh, No. 11,	do. do.	83,430.19	2,500	195	124	319	195	1,440	. . . .	28	. . .	1
Lehigh, No. 12,	do. do.	48,793.00	2,000	141	63	204	153½	960				
Lehigh, No. 13,	Swartz, Oliver & Co.,	12,847.00	1,247	27	28	55	136¼	160				
Kalmia,	Phillips & Sheafer,	169,403.08	2,580	267	123	392	279⅝	3,714	. . . .	83	. . .	3
Lincoln,	Levi Miller & Co.,	176,673.17	5,000	245	127	372	250	4,380	. . . .	. . . .	. . .	2
Rausch Creek,	Miller & Graeff,	74,503.12	7,000	172	98	270	248	505	. . . .	. . . .	. . .	1
Middle Lehigh,	Mill Creek Coal Company,	135,429.13	8,500	214	184	398	229½	3,561	. . . .	. . . .	. . .	1
Herbine,	J. K. Siegfried,	19,298.05	700	145	56	201	203	1,555				
Ellsworth,	John R. Davis,	12,884.00	600	36	15	51	274	400	. . . .	65		
St. Clair,	Atkinson & Lessig,	4,882.02	700	11	6	17	223¼	26				
Sharp Mountain,	Thomas Wren,	794.00	. . . .	4	3	7	240	10				
Oak Hill,	do.	3,319.01	200	16	11	27	160	120				
West Lehigh,	Wood & Pearce,	7,698.18	100	33	20	53	100	50	. . . .	. . . .	. . .	1

Greenwood,	Andrew Raab,	2,570.00	100	6	6	12	200	40				
East Lehigh,	Mitchell & Shepp,	2,096.13	100	4	11	15	89	36				
Dundas, No. 7,	Davis & Co.,	3 646.00	100	25	15	40	180	300				
Jugular,	Jacob S. Hepner,	1,099.04		3	3	6	246					
Chrystal,	Joseph Brady,	3,900.00	200	11	11	22	216	96				
Monitor,	John Denning,	5,611.00	300	20	8	28	220	300				
W. C. Big Diamond,	James F. Donahoe,	2,130.16	100	6	8	14	250	50				
Woods,	C. Wood,	1,510.12		6	2	8	250	50				
Kirkiine,	P. O'Connor,	2,409.00		8	6	14	200	200				
Cumru,	George Morgan & Co.,	1,538.08		4		4	235					
Black Valley,	Edward Hoskins,	1,150.12		4	2	6	250	100				
Pine Dale,	Louis Lorenz,	800.00	100	12	10	22	30	80		80		
Repplier,	John F. Quinn,	3,311.00		9	5	14	242	58				
Altamont,	J. C. Hayden & Co.,		450	16	9	25		51				
New Castle,	B. F. Palm & Son,	928.00			2	2	227					
Keim & Repp,	Samuel Myers,	358.00		2	1	3	210					
Diamond,	John A. Lawrence,	1,579.14		4	2	6	286					
	J. J. Edwards & Co.,	56.10		1	1	2						
Swatara,	J. D. Felty,	1,237.00			4	4	268					
Peach Orchard,	Evans & Co.,	1,998.13		6	4	10	284					
	Dix & Edwards,	268.10		1	1	2	226					
Furnace,	John Wylam,	20.00			2	1						
Tamaqua,	Draper & Wittich,	385.10			2	2	256					
	Vaughan & Co.,	871.00		2	2	4	250					
Peach Mountain,	George Kantner,	1,654.00		6	4	10	262					
	John Rich,	1,000.00		3	3	6	240					
	Job Rich and others,	2,000.00		3	2	5	247					
		1,759,588.17	95,799	4,247	2,828	7,075	*198	38,826	24,505	1,059	93	19
Consumed or sold at colliery,		95,799.00										
Total production,		1,855,387.17										

*Average.

NAMES OF COLLIERIES IN OPERATION AND COAL MINED IN THE POTTSVILLE DIVISION OF MINING DISTRICT OF SCHUYLKILL FOR THE YEARS 1880–81–82–83.

NAMES OF COLLIERIES.	Location of Collieries.	Names of Operators.	1880.	1881.	1882.	1883.
Beechwood,	Mt. Laffee,	Philadelphia and Reading Coal and Iron Company,	$45,078 05	$39,706 17	$31,920 09	$4,987 07
Colket,	Donaldson,	do. do.	25,481 08	43,221 15	31,484 08	35,661 17
East Franklin,	Upper Rausch Creek,	do. do.	34,418 18	19,179 07	25,051 19	13,058 02
Eagle Hill,	Eagle Hill,	do. do.	56,427 16	70,084 12	69,811 10	73,872 17
Eagle,	St. Clair,	do. do.	. . . . .	. . . . .	. . . . .	28,426 09
Forestville,	Forestville,	do. do.	. . . . .	. . . . .	11,443 00	39,213 18
Glendower,	Glen Carbon,	do. do.	25,738 19	51,465 18	1,220 12	23,479 02
Mine Hill Gap,	Minersville,	do. do.	35,028 18	48,902 09	51,540 09	66,988 16
Middle Creek,	Middle Creek,	do. do.	. . . . .	. . . . .	4,872 00	43,967 16
Otto,	Branchdale,	do. do.	35,639 09	55,905 05	11,422 09	32,082 05
Phœnix Park, No. 2,	Phœnix Park,	do. do.	24,468 11	33,011 00	32,963 18	8,859 13
Phœnix Park, No. 3,	do.	do. do.	18,771 01	22,163 01	30,676 03	38,031 12
Pottsville Shaft,	Pottsville,	do. do.	39,062 10	16,478 08	42,625 19	59,562 15
Pine Forest,	St. Clair,	do. do.	33,050 11	41,549 12	32,468 02	60,023 10
Richardson,	Glen Carbon,	do. do.	70,773 14	58,388 16	66,381 00	66,248 15
Swatara,	Swatara,	do. do.	21,463 18	53,124 04	41,725 05	3,141 05
Thomaston,	Heckschersville,	do. do.	77,186 03	82,975 19	70,784 06	93,840 02
Wadesville Shaft,	Wadesville,	do. do.	106,388 00	110,874 08	15,233 04	5,240 10
Herbine,	Minersville,	J. K. Selgfried,	26,883 09	21,132 02	6,245 03	19,298 05
Chandler Tract,	do.	Patrick Keenan,	426 05	100 00		
Eagle,	St. Clair,	George W. Johns & Bro.,	41,466 14	49,361 19	28,594 07	
Ellsworth,	New Castle,	John R. Davis,	10,126 13	11,933 02	15,036 00	12,884 00
Jugular,	do.	Jacob S. Hepner,	895 07	869 04	1,049 17	1,099 04
Gate Vein,	Pottsville,	Gate Vein Coal Company,	395 17	. . . . .	31 00	
Kalmia,	Orwin,	Phillips & Sheafer,	76,026 16	83,167 00	200,100 05	169,403 08
Lincoln,	Tremont township,	Levi Miller & Co.,	125,170 08	146,899 17	165,678 07	176,673 17
Lower Rausch Creek,	do.	Miller, Graeff & Co.,	82,608 19	85,382 03	62,682 17	74,503 12
Lewis Tract,	Minersville,	Seth W. Geer,	773 07	207 18		
Lehigh, No. 8,	Coal Dale,	Lehigh Coal and Navigation Company,	96,145 12	140,365 11	107,423 18	93,299 04
Lehigh, No. 10,	do.	do. do.	91,509 01	83,463 04	116,259 10	107,973 18
Lehigh, No. 11,	do.	do. do.	40,806 05	81,525 10	76,955 00	83,430 19
Lehigh, No. 12,	do.	do. do.	. . . . .	. . . . .	. . . . .	48,793 00
Lehigh, No. 13,	Tamaqua,	Swartz, Oliver & Co.,	. . . . .	. . . . .	. . . . .	12,847 00
Palmer Vein,	New Philadelphia,	Alliance Coal Company,	23,772 00	28,000 00	35,596 00	48,292 07
St. Clair,	St. Clair,	Atkinson & Lessig,	2,253 13	3,524 17	4,858 05	4,882 02
Sharp Mountain,	Pottsville,	Thomas Wren,	3,913 15	2,540 00	1,265 10	794 00
W. C. Diamond,	Minersville,	. . . . .	5,060 11	5,058 18	362 13	
Swatara,	John D,	John D. Felty,	719 00	1,046 05	. . . . .	1,237 00
Chandler Tract,	Minersville,	William Lloyd,	60 00	9 10		
Monitor,	Wadesville,	John H. Denuing,	2,585 04	1,854 07	2,840 00	5,611 00
Peach Orchard,	St. Clair,	do. do.	1,743 15	1,362 07	261 00	
St. Clair,	do.	Thomas Burke,	294 13	235 00	9 00	
Greenwood,	Tamaqua,	Andrew Raab,	1,306 06	2,776 00	2,480 00	2,570 00
West Lehigh,	do.	Wood & Pearce,	14,357 10	16,500 00	12,000 00	7,698 18

Black Mine,	Llewellyn,	J. D. Curtz Crook,	1,259 15	16,357 04	5,628 00	
Tremont Lands,	Tremont,	Peter Laux,	402 15	131 05		
Furnace,	St. Clair,	John Wylam,	239 00	120 00	50 00	20 00
		Theodore Hellman,	323 00	637 11		
Black Valley,	Minersville,	Edward Hoskins,	1,710 03	1,942 16	1,666 17	1,150 12
W. C. Big Diamond,	Wolf Creek,	James F. Donohue,	5,005 01	8,000 00	5,860 00	2,130 16
Middle Lehigh,	New Boston,	Mill Creek Coal Company,	47,601 00	153,924 11	146,432 01	135,429 13
Hiawatha,	Middleport,	S. Kestenbach,	150 00			
Middleport,	do.	Louis Lorenz,	3,000 00	6,600 00	1,827 17	
East Lehigh,	Mahanoy,	Mitchell & Shepp,	5,677 17	10,116 08	8,461 02	2,096 13
		Stephens & Bossler,	150 00			
Repplier,	New Castle,	John F. Quinn,		3,106 18	4,250 16	3,311 00
Mammoth,	Broad Mountain,	Mahaney & Co.,		750 00		
Woods,	Swatara,	C. Woods,		1,054 12	887 02	1,510 12
Garfield,		Tim Cockhill,		252 04		
Kelm & Repp,		Samuel B. Myers,		165 00		358 00
W. C. Diamond,		John W. Davis,		566 18		
Dundas, No. 7,		Davis & Co.,		5,000 00	9,981 17	3,646 00
Northdale,		John B. Church,			2,968 00	
Jonestown,		T. F. Quinn,			350 00	
Oak Hill,		Thomas Wren,			320 10	3,319 01
Kirkline,		P. O'Connor,			219 00	2,409 00
New Castle,		B. F. Palm & Son,			659 00	928 00
Cumru,		George Morgan,			919 00	1,538 08
Chrystal,		Joseph Brady,			5,149 11	3,900 00
Oakwood,		John Botham & Co.,			1,000 00	
Morning Star,		Whyms & Morgan,			560 00	
Black Heath,		George Kantner,			729 00	1,654 00
Diamond,		John A. Lawrence,			1,842 18	1,579 14
		Daniel Larer,			411 00	
Pine Dale,		Louis Lorenz,				800 00
Kaska William,		Alliance Coal Company,				19,519 00
Peach Orchard,		Evans & Co.,				1,998 13
		John Rich,				1,000 00
		Job Rich and others,				2,000 00
Tamaqua,		Draper & Wittich,				385 10
		Vaughan & Co.,				871 00
		Dix & Edwards,				268 10
		J. J. Edwards & Co.,				56 10
Total,			$1,367,531 06	$1,726,089 12	$1,612,526 16	$1,759,588 17
Sold or consumed,			93,549 11	103,566 14	96,753 16	95,799 00
Total production,			$1,461,070 17	$1,829,656 06	$1,709,280 12	$1,855,387 17

COMPARATIVE STATEMENT OF CASUALTIES, TONNAGE, AND EMPLOYEES FOR FOUR YEARS IN FIRST OR POTTSVILLE DIVISION OF MINING DISTRICT OF SCHUYLKILL.

YEARS.	Killed.	Injured.	Total.	Total number of employés.	Number of employés to each casualty.	Total number tons of coal mined.	Number tons of coal mined to each fatal casualty.	Number tons of coal mined to each non-fatal casualty.	Ratio of tons of coal mined to casualties.	Number tons of coal to each employé.
1880, ...	15	129	144	6,913	$53\frac{1}{2}$	1,461,070.17	97,404.14	11,362.02	10,146.06	211.07
1881, ...	18	173	191	6,497	$34\frac{3}{191}$	1,829,656.06	101,647.11	10,516.00	9,579.06	281.10
1882, ...	20	91	111	6,632	$59\frac{83}{111}$	1,709,280.12	85,464.00	18,783.00	15,398.01	257.00
1883, ...	19	74	93	7,075	75	1,855,387.17	97,651.14$\frac{11}{19}$	25,072,06	19,950.08	262.05
Total, ...	72	467	539	27,117	. . . . .	6,855,395.12				
Average, ...	18	116$\frac{3}{4}$	134$\frac{3}{6}$	6,779$\frac{1}{4}$	55$\frac{11}{16}$	1,713,848.18	95,541.15	16,433.07	13,768.10	253

SECOND DISTRICT.

Office of Inspector of Mines,
Shenandoah, Schuylkill County, Pa., *February 28, 1884.*

To His Excellency, Robert E. Pattison,
Governor of Pennsylvania:

Sir: In compliance with section twenty-two of an act of Assembly approved March 3, 1870, intended to improve the sanitary condition and decrease the risk incurred by employés in mines, I have the honor to submit the following annual report as inspector of mines for the Second inspection district of the anthracite region for the year 1883.

In the following report I have *enumerated* all accidents reported as having occurred in and around the coal-mines and collieries of this district, and marked in tabular form those casualties producing death and serious injury. The general condition of the mines as to safety and ventilation has been noted; statistics of production, employés, time worked, &c., have been collected; tables showing the ratio of casualties to production have been constructed, and my labors as inspector for the year generally and fully set forth.

The data here presented have been obtained from original sources, being furnished by the courtesy of the companies and individual operators of the district in response to circulars issued for that purpose, which, with few exceptions, were promptly responded to. The descriptions of fatal accidents and general remarks on the condition of the mines are the result of personal inspections of the scene of such accidents, and examinations of witnesses who were present at the time or conversant with the facts and circumstances surrounding each case.

It becomes my very unpleasant duty to report an increase in the number of lives lost during the year; and although production has increased, still the ratio of lives lost to tons mined is higher than for the two past years. The non-fatal casualties, however, have decreased, both in number and ratio, to the persons employed and tons mined.

The total production of the district in tons for 1883 was . .	4,854,725
The total number of employés was	13,389
The number of lives lost was	47
The number of persons injured was	134

The tons of coal mined to each life lost were	103,292
The tons mined to each person injured were	36,229
Showing that a casualty of some kind occurred for every 26,821 tons of coal mined.	26,821
Of those employed in and around the mines one person was killed out of every	285
And one person injured out of every	99
Showing that one employé was injured, either fatally or otherwise, out of every	74+

The above figures are suggestive as to the risk incurred by those engaged in mining and preparing anthracite coal, and when viewed from every stand-point lead to grave reflections as to how and by whom the remedy is to be applied.

Mine accidents and their prevention have been so often and so ably discussed, both in the mine inspectors' reports and out of them, that there is little left to be said, especially when a commission has been appointed by your Excellency with a view to future legislation on the subject.

An analysis of the tables contained in this report will disclose the fact that a majority of the accidents occurring in and around our mines are directly chargeable to either the carelessness or ignorance of the victims. And no matter how many safeguards legislation may throw around the miner, still fifty per cent. of his safety depends upon himself. As long as inexperience and recklessness are employed to deal with danger, we can expect no improvement in this direction.

This leads to the proposition of whether the State has or has not the right to enforce discrimination in the employment of those who are compelled to work in very dangerous places, and especially in mines generating dangerous volumes of gas.

It will require extensive knowledge of the subject, and careful consideration of the different interests involved, to frame laws so that legislation may not interfere with the private business of the employer and the individual rights of the employed.

The employer will claim the right to employ whom he pleases to perform his work, and that the amount of remuneration is measured by the risk incurred, and thus pretend to relieve himself of all responsibility; while the employé will claim his right to sell his labor in the highest market, and that any interference is an infringement on his individual rights.

On the other side, it may be argued that if the State through its Legislature has the right, within certain limits, to dictate *how* coal shall be mined, it follows that the same authority should have the right to dictate *who* shall mine it.

As the coal interests are assuming vast proportions in this grand old Commonwealth, we hope that future legislation on this subject may be in

the interest of all concerned, and especially those "who earn their bread by the sweat of their brow" working in and around the mines.

Hoping the following report and its accompanying tables may prove useful to those interested in mining and kindred subjects, I remain,

Yours respectfully,

ROBERT MAUCHLINE,

Inspector of Mines.

Casualties for 1883.

Of the 47 fatal accidents which occurred in and around the mines of this district during the year 1883, 37 or 78½ per cent. occurred under ground, and 10 or 21½ per cent. occurred on the surface.

Of those under ground, 15 or 40¼ per cent. were due to falls, 8 or 21¾ per cent. were connected with the transportation, 8 or 21¾ per cent. from handling and using explosives, and 6 or 16¼ per cent. were from gas.

Of those which happened on the surface, 3 or 30 per cent. were from transportation, 3 or 30 per cent. from boilers, 3 or 30 per cent. from machinery, and 1 or 10 per cent. from miscellaneous causes.

The following table shows the number, class and month in which occurred the fatal and non-fatal casualties for the year:

Casualties for the Year 1883.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total for 1883.	Total.
Fatal—Inside.														
Accidents by falls of top and sides,		2	2	2					3	1	4	1	15	
Accidents connected with transportation,			3	1		1		1		1	1		8	
Accidents from handling and using explosives,				1	3		1	2				1	8	
Accidents from gas,	1		3					2					6	
Accidents from miscellaneous causes,														
Monthly total,	1	2	8	4	3	1	1	5	3	2	5	2	37	
Fatal—Outside.														
Accidents connected with transportation,			1							1	1		3	
Accidents from boilers,		1							1			1	3	
Accidents from machinery,				1		1					1		3	
Accidents from miscellaneous causes,				1									1	
Monthly total,		1	1	2		1			1	1	2	1	10	47
Non-fatal—Inside.														
Accidents by falls from top and side,	1	5	5	3	4	5	1	10	1	7	4	1	47	
Accidents connected with transportation,	2	2	3	2	2			6	4	1	1	1	24	
Accidents from handling and using explosives,	2	1	3	1	2	2		1	2		1		15	
Accidents from gas,	3	3	4	1	1		1	5	2	2			22	
Accidents from miscellaneous causes,				1					1		1		3	
Monthly total,	8	11	15	8	9	7	2	22	10	10	7	2	111	
Non-fatal—Outside.														
Accidents connected with transportation,	1			1	1		3	1	4	1	1	1	16	
Accidents from boilers,														
Accidents from machinery,				1				1		1			3	
Accidents from miscellaneous causes,	1	1			1					1	1	1	6	
Monthly total,	2	1		2	2		3	2	4	3	2	2	23	134

On Accidents from Falls of Top and Sides.

Examination of these figures shows that the *top* and *sides* are still the greatest source of danger to the miner, forty per cent. of all lives lost being from this source. Of the fifteen reported in 1883, only three were under conditions requiring extraordinary caution to have prevented them, leaving twelve out of fifteen to be classed as preventable with ordinary care. This proves by actual results our former assertion that eighty per cent. of all accidents from falls are preventable. Although the number of casualties from falls occurring in this district has decreased in proportion to the quantity of coal mined, it does not follow that all the improvement is due to increased caution on the part of the miner, but it is due rather to the fact that a larger proportion of our coal is being mined from the thinner seams under the Mammoth, which, being thinner with average strong tops, are much easier secured with props. This is the probable reason why the ratio to tons has decreased, while the ratio to other accidents remains about constant.

Next in importance as to number come the

Accidents Connected with Transportation.

There were eleven persons killed on slopes and on mine tracks in and around the mines of this district during the year, two of whom were miners, and not employed in that department, leaving nine persons killed whose duties were connected with the moving of material, either underground or on the surface.

I find, by examining the list of employés, that the proportion between the number employed in the mining and in the transportation is as fourteen to one, while the accidents due from mining bear a proportion to those from transportation of only three and one fourth to one. This would indicate that moving material in and around the mines is either four times as dangerous as mining it, or that those engaged in this department are less able to take care of themselves.

The facts also show that although those employed in this class of work are in danger from many things over which they have no control, still nine out of eleven lost their lives through their own neglect.

Next come the accidents from the handling and use of

Explosives.

There were eight lives lost during the year from powder and shots, while the annual average for the last five years was three from this cause, and although the tonnage is increasing, an increase in the number of this class of casualties from three to eight ought to attract attention. The patent squib has long ceased to be an experiment, and although there is still room for improvement in its manufacture, we cannot look in that direction for the cause; and improved ventilation, by clearing away the smoke, enables the miner to see much better to adjust the match and get out of reach of the blast. We are thus forced to the conclusion that the increased

number of accidents from this cause is due to the increase in the number of inexperienced miners.

There were four fatal explosions of gas during the year resulting in the loss of six lives. As to how they occurred and could have been prevented I refer the reader to the detailed description in another part of this report. Attention has been so often called to this class of casualties in previous reports that I will pass it over without further comment.

Of the ten lives lost above ground, six were due to boilers and machinery. Two of the three lives lost by machinery were caused by allowing boys to stray through the breakers away from their work, and the only prevention for such casualties is rigid discipline and careful fencing. The fact that only two boys were killed by machinery in the preperation of nearly five million tons of coal shows that our breakers are as safe as the mills and factories of New England.

There were three boiler explosions resulting in the loss of three lives, and in all three cases the boilers had been examined within the legal time.

In conducting investigations into the cause of boiler explosions, it is difficult to obtain direct testimony regarding the condition of the boilers at the time of the explosion, as to the quantity of water, regularity of feeding and general treatment, because those who ought to know best are generally the victims. The expert testimony, being opinion resulting from inspection of the wreck, is often contradictory, some blaming the construction, and others the treatment. One thing we do know that in all three cases the boilers had been long in use, had been repaired, were not hung on the most improved methods to counteract expansion and contraction, and were carrying pressures above seventy-five pounds to the square inch.

Careful internal examination of a boiler will detect *grooving* and *pitting*, but the surest plan of ascertaining the thickness of a boiler sheet is to drill a small hole through it and measure the metal; a quarter-inch hole can be closed with a rivet, with little injury to a worn boiler.

The Philadelphia and Reading Coal and Iron Company, which operates nearly one half of the collieries in this district, has been replacing worn boilers with new ones of improved construction, one range after another, as the collieries came under its control, until a majority of the boilers at its collieries are of this improved class, and, although it operates nearly fifty per cent. of the boilers, the three boiler explosions occurred among the other fifty per cent. This shows that to use high grade iron and improved methods of hanging, to do more replacing with new ones and less repairing of old ones will result in diminishing the risk from boiler explosions.

One fatal casualty I have placed under the head of *miscellaneous*, and, after special inquiry, I am unable to determine whether the fatality was or was not as much the result of the treatment as of the injury.

Condition of the Mines.

The general condition of the mines of this district as to *safety* and ventilation has not materially changed during the year; a few new fans have been erected and other changes made to increase the ventilation, and, although there is still room for improvement, I find that at most of the collieries the fault is more in *distribution* than in *volume.*

The collieries, with few exceptions, send monthly reports of air measurements made by their inside foremen. Some of these, from the arrangement of the splits, require some aequaintance with the colliery to be intelligible, while others from the uniformity of the figures, from week to week, have evidently been manufactured; close inspection of such reports will always detect a forgery.

The practice, however, of measuring weekly and reporting monthly has had good results. It keeps attention on the ventilation, and detects any change in the air currents.

The following table very nearly represents the volumes of air supplied to the collieries of this district together with the number of persons to whom it is supplied.

Table showing the number of inside employés and volume of air supplied in the collieries of District No. 2.

Name of colliery.	No. of employés.	No. of cubic feet of air.	Name of colliery.	No. of employés.	Cubic feet of air per minute.
Girard,	112	21,000	Packer No. 4,	266	90,000
Hammond,	155	28,000	Honey Brook No. 1,	114	12,000
Connor,	177	54,000	Honey Brook No. 4,	216	17,000
Girard Mammoth,	100	26,000	Honey Brook No. 5,	173	9,000
Turkey Run,	213	59,000	Cuyler,	206	25,000
West Shenandoah,	195	66,000	William Penn,	331	80,000
Shenandoah City,	196	40,000	Kohinoor,	367	36,000
Plank Ridge,	237	32,000	Kehleys Run,	161	20,000
Indian Ridge,	249	58,000	Oak Dale,	18	
Ellengowan,	368	81,000	Cambridge,	19	
Knickerbocker,	190	20,000	Coal Run,	194	75,000
Gilberton,	137	46,000	West Bear Ridge,	78	26,000
Boston Run,	125	36,000	East Bear Ridge,	67	
Bear Run,	125	43,000	Lawrence,	140	30,000
St. Nicholas,	160	48,000	Stanton,	139	20,000
Tunnel Ridge,	160	36,000	Laurel Ridge,	30	
Elmwood,	115	36,241	Draper,	204	40,000
Mahanoy City,	167	26,185	Webster,	25	
North Mahanoy,	77	47,000	Glendon,	175	20,000
Schuylkill,	160	29,000	Coplay, (now Park No. 1,)	110	30,000
Packer No. 1,	139	12,000	West Lehigh,	118	26,000
Packer No. 2,	197	60,000	Primrose,	66	24,000
Packer No. 3,	251	161,000			

Safety.

The mechanical engineering of the collieries is improving, especially with the large corporations. The new fittings being of a superior type give greater security to the employé.

The P. & R. C. & I. Company now operates all but three of the collieries in the Mahanoy basin, east of Girardsville. If these three were added, this company could then establish hoisting and pumping machinery on the lower seams at convenient intervals along the valley, and by cross-cut tunnels mine all available coal above the present levels—the large reservations—to protect the slopes on the Mammoth seam—included, and at the same time prepare to reach the coal below.

In a few years some of these slopes will be almost beyond repair, and as the present plants will not be adequate for the depths to be reached in the future, it will, in most cases, be cheaper to make new openings than maintain old ones, and as future mining will have to be on "system," the necessary changes can be best effected by large corporations.

The question as to whether mining under large corporations will or will not be an improvement, morally, socially and financially, to the people of the region, is not a matter for this report. As far as safety to employés and prevention of waste in mining is concerned, I am of opinion it will lead to improvement.

The following figures show the tons mined to lives lost in the collieries of the corporations and individual operators, respectively:

Philadelphia and Reading Coal and Iron Company, production in tons,	2,085,908
Number of lives lost,	17
Tons mined to each life lost,	161,871
Lehigh Valley Coal Company, production in tons,	541,072
Number of lives lost,	15
Tons mined to each life lost,	36,071
Honeybrook collieries, (Lehigh and Wilkes-Barre Coal Company,) production in tons,	371,608
Number of lives lost,	1
Individual operators, production in tons,	1,581,340
Number of lives lost,	14
Tons mined to each life lost,	112,952

For the last five years the collieries of the Lehigh Valley Coal Company will compare favorably as to safety, but the year 1883 has been a singular exception.

Fatal Accidents from Falls.

No. 1.—February 22. Martin Cunningham, aged twenty-one, single, a laborer, employed at Packer No. 2 colliery, Lehigh Valley Coal Company operators, was killed, while standing on the turn-out, by a piece of coal falling on the timbers and crushing its way through the slab-laggings, between two collars, falling on Cunningham as he stood on the track below. From inspection of the place, and examination of witnesses, I obtained the following facts regarding this accident:

The turn-out in question was being driven on the fourth level of the Mammoth seam, going west. The coal is hard, but gives off considerable

gas. The collars, being fourteen feet between the notches, and the angle of dip about thirty degrees, to obtain the full width of about eighteen feet requires several of the benches to be cross cut. As the benches generally break off square, large triangular spaces are thus formed over the timber, which, if not properly blocked, allow the benches to snap off in large blocks, which lie loose over the timbers.

The miner who was barring down some coal at the face told his laborers to stand back out of reach. They did so, and Cunningham took position under the space between the third and fourth collar. When the coal being barred fell, it started more coal back over the timber, which was only blinded with slabs too weak to hold the weight. A piece weighing a ton fell through and killed Cunningham, while a rush of small pieces, which followed through the aperture, nearly covered him.

After examining the place, I formed the opinion, that if *pole laggings* four inches in diameter had been used, and the collars blocked in a workmanlike manner, instead of being merely blinded with slabs, this accident would have been averted.

The fact that a man was killed by a fall while standing on a timbered turnout, the place intended as a general station, where drivers, loaders, &c., were likely to meet, shows that it was not "*carefully secured against falling*;" and I have no hesitation in saying that if the turnout had been as well *lagged* as it was timbered, this accident would have been prevented.

No. 2.—February 28. James Tierney, aged forty, single, a miner employed at Packer Colliery No. 3, Lehigh Valley Coal Company operators, was fatally injured by a piece of coal falling from the two-foot bench of the Mammoth seam.

Inspection showed the main top to be good and the ventilation satisfactory, objects not being obscured by smoke.

Tierney's partner was drilling a hole in the two-foot bench while he was placing a plank in position as a platform to enable him to reach higher so as to finish the drilling. While in the act of looking up, a piece fell on him, broke his breast bone, cut his head, and inflicted other injuries, resulting in death on the day following.

The men had sounded the bench, and finding it solid, were drilling the hole to blast it down, but the sounding being done inside the loose piece it deceived them, and being high they failed to notice it. A careful inspection would have discovered the loose piece and prevented this accident.

No. 3.—March 14. John Meco, aged twenty-three, single, a laborer employed at West Lehigh Colliery, Fisher Hazard, operator, was killed by a fall of coal in the west gangway of the Mammoth seam. This accident occurred on the night shift, when the miner, with Meco and his brother as laborers, were the only persons in the mine.

The miner, after showing Meco where to drill a hole, took the other laborer along with him for the purpose of bringing in as many cars as would serve the shift, there being no driver.

Being away about an hour, on returning they smelled burning clothes. Examining the gangway, they found Meco under a fall, his clothes on fire and life extinct. On examining the gangway next day, I found it in good condition and well timbered to the face. The mining for the next cut had been taken out, and Meco had been drilling a hole under, when part of it fell off with above result.

There being no indications of gas, I concluded that his clothes had been set on fire by the upsetting of his coal-oil lamp. The miner swore that he sounded the top, and considered it safe before starting Meco to work; but in less than an hour it fell, and Meco, being an inexperienced Hungarian, was unable to judge as to its safety. As both laborers came to work thirty minutes later than the miner, they did not see the examination made, leaving only the sworn statement of the miner as to the examination. The coal was soft, and water dripping from the top rendered it liable to fall without notice, which accounted for it being timbered so close to the face. This accident was the result of allowing *inexperience to deal with danger.*

No. 4.—March 15. John Curran, aged fifty-seven, wife, no family, a miner, employed at Glendon colliery, J. C. Haydon & Co., operators, was fatally injured by a fall of top coal. Where this accident occurred, the Buck Mountain seam lies at an angle of twenty-four degrees. The upper bench being inferior coal is propped up as a safer top than the slate over it, and is taken down when the pillars are removed.

The breast worked by John Curran and his partner, Edward Cummings, became very slippery and dangerous in the top coal. On the morning of the accident, the assistant boss, noticing the danger, notified the men to either prop up or blast down the dangerous top coal and secure the place. Curran replied that he knew how to act, and shortly after fired a shot in the face. While on their way back to ascertain the result of the shot, the top coal along one side for several yards fell, and a piece striking Curran inflicted injuries resulting in death the same evening.

On inquiry I found that the men had been repeatedly ordered to prop and secure their working place, and on one occasion the boss had stopped their supply of cars in order to compel them to comply with his orders.

I brought suit against Cummings for violation of the mine law; he was tried, convicted, and sentenced to imprisonment.

In all such cases if mine officers would act with firmness and insist on immediate compliance with orders to secure top, accidents of this class would be fewer.

No. 5.—April 12. Thomas Agen, age thirty-two, wife and three children, a miner employed at the West Bear Ridge Colliery, Meyers, McCreary & Co., operators, was killed by a fall of coal while at work in the face of the breast. Where this accident occurred the seam is thick and soft, and dips at an angle of fifty-five degrees, and as considerable gas is given off safety lamps are used.

To guard against sudden rushes of gas from falls of top coal the breasts are kept full by putting the surplus coal down the manways.

Agen was dressing after a shot when, without warning, a piece of coal three feet thick fell with the result as stated.

The place was in good condition and was being worked on the safest plan practicable under such conditions.

No. 6.—April 18. Anthony Lynch, age thirty-eight, wife, no family, a miner employed at Bear Run colliery, Philadelphia and Reading Coal and Iron Company, operators, was killed by a fall of slate near the face of his working place.

The seven-foot seam here is on an angle of 30° with six inches of slate over it, next to the top, and is worked with jugglers. This slate is taken down and left in the middle as gob. The day before the accident the boss ordered Lynch to extend his man-way past a loose piece of this slate or take it down. He promised to obey but failed. The next day it fell and killed him before the boss had time to revisit the place.

No. 7.—September 3. Patrick Garvey, age twenty-one, single, a laborer employed at Cuyler colliery, S. W. Heaton & Co., operators, was fatally injured by being jammed against the sides of a chute by a piece of top slate sliding from a fall.

The contractors for whom Garvey worked were engaged in removing the pillars from an abandoned gang-way. Garvey was assisting to tamp a shot when a fall occurred, up in the waste. The miner told him to keep in the heading out of danger; but as he had worked only a few days in the mines, the noise of the fall alarmed him, and, losing his presence of mind, he made a dash to get down the chute to the gang-way, when a piece of sliding slate jammed him. His injuries were not considered serious at the time, but he died on the 7th, four days later, *another victim to inexperience.*

No. 8.—September 13. William Muldowney, age fifty-five, wife and one child, a miner, employed at Glendon colliery, J. C. Haydon, operator, was fatally injured by a fall of coal.

Muldowney worked in a breast on the seven-foot seam, and at the time of the accident was barring down some loose coal. After an unsuccessful attempt to bar down a large piece he went to do some other work, intending to resume the barring afterwards. While he was crossing the place below it, it fell, injuring him severely in the back, from the effects of which he died November 12, two months later.

Cause of accident, not completing the removal of the danger or keeping out of its reach until removed.

No. 9.—September 28. James Cosgrove, age fifty, wife and eight children, a miner employed at Packer colliery No. 4, Lehigh Valley Coal Company, operators, was fatally injured by a fall of coal. This accident belongs to a class not easily prevented. The place was eighteen feet high, and the miners were engaged taking coal from the pillars, but had fired no shots in the solid for several days. While Cosgrove was putting coal in the chute a flat piece of soft coal, six inches thick, fell, and a piece struck him, inflicting injuries, resulting in death the same day.

When I examined the place a few hours after the accident, it appeared as safe as the others in the same district of the mine, the piece which fell being a thin layer between two sections of the seam. Being worked with sheet-iron chutes, there was neither wagon or buggy upon which to stand and examine the top, and to have erected scaffolding for that purpose would have been to introduce a system of examination which has never been resorted to in this district, but, of course, could be if expense was not considered.

No. 10.—September 28. Charles Gillespie, aged fifty-seven, wife and six children, a miner employed at Coal Run colliery, Suffolk Coal Company, operators, was killed while at work in a breast on the Primrose seam. The coal in this section of the mine is very soft and friable, dipping about 20°. The breasts are worked about twelve feet wide, and then skipped backwards as a precaution against the bad top.

While Gillespie was raking coal on the sheet-iron, some pieces fell from the face, one of which striking him on the head killed him instantly.

Examination of the place showed it to be as safe as those on both sides. Under such conditions timbered chutes, driven up to be robbed back, instead of narrow breasts, would increase the safety, while the extra amount of coal obtained from a given area would more than compensate for the first cost.

No. 11.—November 12. George Whitiear, aged twenty, single, a miner employed at Indian Ridge colliery, Philadelphia and Reading Coal and Iron Company, operators, was fatally injured by a piece of coal from a rush rolling down the breast and breaking his leg. Amputation not being resorted to, his leg grew worse, death ensuing on the 26th of the same month.

As this accident was the result of coal rushing, not falling, attention and caution are the only means of prevention.

No. 12.—November 14. William Norris, age twenty-four, single, a miner, employed at Plank Ridge colliery, Philadelphia and Reading Coal and Iron Company, was fatally injured by a fall of dividing slate while at work in a breast on the Skidmore seam. On examination I found the place to be twenty-eight feet wide and seven feet high, the coal hard, and the top strong. Fifteen inches from the top of the seam, a dividing slate occurs about nine inches thick, which is left in the place as gob.

The men had a shot over this slate to break it down. A piece was left hanging on the side and, being dangerous, they were barring to get it down. While thus engaged, the loader called for them to put down as much coal as would load the car at the platform. While shoveling coal from under this piece, it fell, and striking Morris, inflicted injuries resulting in death on the 26th of the same month.

They could have shoveled the required quantity of coal from the opposite side of the breast, but they wished the loose coal under it removed, so that when it fell it would not require to be turned over to get at the coal.

The consideration of turning over this piece of slate, five feet long, eighteen inches broad and nine inches thick, *cost a life.*

No. 30.—John Muldoon, age forty-four, single, a miner, employed at Ellangowan colliery, Philadelphia and Reading Coal and Iron Company, operators, was killed by a fall of top-slate.

The seam at this place is hard, with a strong top over it, and the breasts are worked thirty feet wide, without props, the coal being run down jugglered man-ways on the sides. Between the coal and main top, a thin slate occurs, which some places sticks fast to the top, and at other places has to be taken down and thrown in the gob.

In this case, Muldoon's brother, who worked with him, testified before the coroner's jury that they knew it was *drummy*, meaning that it sounded loose, but that it was tough and difficult to bar down, and they concluded it would not fall. While engaged lifting bottom coal, a large flag fell, and the corner of it striking Muldoon, killed him. On inspection, I found the place in good condition, the general aspect showing that the men were miners, only the *drummy* piece should have been barred down and such risks avoided.

No. 14.—November 30. Enoch Perry, aged forty-five, wife and four children, a miner employed at North Mahanoy colliery, Philadelphia and Reading Coal and Iron Company, operators, was killed by a fall of slate while engaged in robbing the pillars of an abandoned gangway. Perry and his partner had fired a shot, and, after waiting until the smoke cleared and the place settled off, ventured cautiously up to ascertain the situation. Finding a prop displaced, they listened a few seconds and then attempted to replace it. The other man held the prop, while Perry adjusted the cap for the purpose of wedging it tight. While in the act a triangular piece of slate over the prop fell, and, striking Perry on the temple, killed him. Examination showed the place to be secured in a workmanlike manner, and that the miners were taking no unnecessary risks under such conditions.

To avoid accidents like the above would require a degree of caution not practiced in this district.

No. 15.—December 3. Michael Brennan, age fifty-six, wife and six children, a miner employed at Glendon colliery, J. C. Hayden, operator, was killed by a fall of top slate. On examining the scene of this accident I found it a narrow breast, where the Buck Mountain seam was in fault, the the top slate being intersected with seams or slips and very dangerous. For a distance back from the face of over sixty feet the place was insufficiently propped or secured, and not in condition for a fire-boss to examine, much less fo miners to work in.

On the morning of the accident the fire-boss ordered Brennan to prop and secure the place, as he would not enter to examine it until he did so. Brennan promised to comply, and proceeded straight to the place; when he had reached within a few feet of the face the top clear across the breast, for a thickness of three feet, fell and covered him, requiring one hour's

work by several men, splitting and wedging at the mass, before the mutilated body of Brennan could be reached and removed.

Accidents connected with Transportation in and around the Mines of the District.

No. 1.—March 5. Darby Deneghan, age twenty-nine, single, a laborer employed at Packer colliery, No. 2, Lehigh Valley Coal Company, operators, was fatally injured while riding up the slope. Where this accident occurred the slope dips at an angle of 35°. When the cars reach the top a gate or drawbridge is lowered, and they are lowered back over it; the timber upon which this gate is hinged is fourteen inches clear over the top of the car, while the cross-pieces of the gate when up are a little higher. While riding up Deneghan ducked his head to clear the timber and raised it just in time to strike the cross-piece of the gate, but, as the car was nearly stopped, his injuries were considered slight, he being able to walk part of the way home without assistance. He grew worse, however, and died on the seventh, two days later. After the accident the height was increased to seventeen inches, by cutting off timber, and the under side of the gate covered with boards, so as to present no projections against which to strike. This increases the safety, still I did not consider the place specially dangerous before.

No. 2.—March 13. Thomas Early, age eighteen, single, a bottom man employed at Packer colliery, No. 3, Lehigh Valley Coal Company, operators, was killed by the car breaking loose from the rope and running him down as he was walking back along the turn-out. He had just signaled the car to be hoisted and turned to block the next. The one on the slope had only reached up a few feet when the rope pulled out of the socket, allowing the car to run back, and as Early had his back to it he failed to get off the track.

Examination showed that the rope had been imperfectly socketed, and was considerably worn. It had been resocketed by the blacksmith some two weeks previous, and was examined by the boss that morning.

No. 3.—March 19. John Canfield, age thirty, wife and children, a laborer employed at Cuyler colliery, S. M. Heaton & Co., operators, was killed while attempting to board a car in motion on the dirt plane. Canfield, who had occasion to be down at the shop, instead of walking back to resume work on the dirt bank, waited alongside the track until the loaded car passed up. While attempting to get on the bumper to ride he slipped and fell, the car being dragged over him with above result. Canfield violated the law in riding and the colliery rules in being on the plane while the ropes were in motion.

No. 4.—March 31. Joseph Kane, age thirty-two, wife and one child, a loader employed at Packer colliery, No. 4, Lehigh Valley Coal Company, operators, was fatally injured by being crushed between cars, death ensuing the same evening.

From the evidence obtained at the coroner's inquest, it appears that on the morning of the accident a driver was absent, and Kane, who had charge of the loading, took the mule team until the boss would send a driver.

While pulling some loaded cars on to the turn-out he misplaced a switch, causing the cars to take the wrong track, upon which some empty cars were standing. Failing to notice his mistake in time to prevent a collision he attempted to unhook the mules, but was caught between the cars with above result.

No. 5.—April 25. William Lawson, age fourteen, a coupler employed at Kehley's Run colliery, Thomas Coal Company, operators, was fatally injured, being dragged by a car and jammed against the side of the turn-out. Lawson's duty was to couple trips of empty cars ready for the teams. While a loaded car was being run in on the slope bottom he attempted to remove a coupling from the front end. Failing to unhook it he fell, and getting entangled was dragged and finally jammed between the car and side of the turn-out, receiving injuries resulting in death on the 28th of the same month, three days later.

No. 6.—June 6. Charles Hylton, age forty-nine, wife, no family, a machinist employed at Packer colliery No. 3, Lehigh Valley Coal Company, operators, was fatally injured by being run over by a car on the slope. The slope here dips at an angle of about 25°, is single track, with division alongside. Hylton and others were engaged putting steam-pipes in the division parallel to the track for supplying a steam-pump located at the bottom. Hylton, who was not experienced in mines, had his attention so concentrated upon his work as to forget his surroundings, and having occasion to move downwards to a joint in the pipes, stepped outside the props which separated the track from the pipe compartment, a passing car struck and knocked him down, inflicting injuries, resulting in death the same evening.

No. 7.—August 11. Dennis Curduff, age thirty-five, wife and five children, a miner employed at Packer colliery No. 2, Lehigh Valley Coal Company, operators, was fatally injured by being dragged under a car on the slope.

The general tenor of the evidence offered before the coroner's jury showed that Curduff and others working in the first counter gangway above the bottom, came out at noon to be hoisted, as it was pay day and they wished to get home early. As they reached the side of the slope the car passed up with the bottom men, who told them that they could not be hoisted until after dinner, (forty minutes later.) Knowing that when the car stopped at the surface landing to allow the bottom men to get off that the other car would stop at a point nearly half-way between them and the bottom, they all scrambled down to this place, and when the car stopped got on. Just as Curduff was stepping on, the car started up the slope again, and, although one of the others caught hold of him, he was dragged in front of the car. Fortunately, a driver was at the bottom, who, hearing the men crying, knew something was wrong, signaled the engineer to stop, and prevented further damage, not, however, before Curduff had received injuries resulting in death on the fourteenth, three days later.

The reason that the car started up was that the rope on that side required

to be up and off the sheaves, which were to be repaired, and the engineer having no reason to suspect that men were getting on the car below, reversed the engine as soon as the bottom men got off at the surface landing. Some of these men swore that their object in getting on the car was to sit there hanging on the slope until the car moved either up or down when the colliery resumed after dinner.

After cross-examining them I formed the opinion that they knew which rope would be left up to change the sheaves, and expected by getting on to be hoisted at once and avoid waiting.

It was very fortunate that some one was in the bottom to stop the car, as it soon would have attained a high speed, and the man who had hold of Curduff would have been forced to let go. The car in passing over him might have jumped the track, caught in the timber, broken the rope, and killed all who were in or on the car.

The fact that half a dozen men would scramble down a slope and mount a car without signaling to the engineer, shows what class of men can be found, and what kind of discipline is enforced at this colliery.

No. 8.—October 24. John Roberts, aged thirteen, a runner's assistant or spragger boy, employed at Honey Brook Slope No. 8, Wilkes-Barre Coal Co., operators, was killed by being run over by loaded cars. On investigation, I found that the inside boss had sent Roberts with a message to the breaker at No. 5 slope. On reaching the surface he saw the locomotive just starting with a trip. In attempting to get on to ride he slipped and fell under the cars, some of which passing over his legs nearly severed them from the body. He lived about an hour after being extricated. The cars are hauled by a small locomotive from the slope to the breaker, and I could not find that orders had been issued against riding on the trains.

No. 9.—October 24. William Simpsil, aged fifteen, a door-boy employed at Ellengowan colliery, Philadelphia and Reading Coal and Iron Company, operators, was fatally injured by having his leg squeezed between two cars. Simpsil, while running in front of a trip, ran against an empty car which was standing on the track, and before he recovered from the shock and got off the track, the cars came in contact, injuring his knee. He was able to walk home, but the knee grew worse. Amputation was at last decided on, and performed on the 16th of November, but too late to save his life. He died next day, November 17.

Simpsil, whose duty it was to accompany the driver and attend the check-doors, knew the empty car had been left on the track, but forgot when coming in with the next trip, and in his hurry to open a door ran against it, with the above result.

No. 10.—November 14. John Fulloway, aged twenty-six, single, a driver employed on the culm bank at Ellengowan colliery, Philadelphia and Reading Coal and Iron Company, operators, was killed by the dumper, on which he sat, tipping and throwing him under it, on the way from the breaker to the culm bank.

From some cause, the pin which holds the latch in position slipped out, allowing the dumper to tip, while moving at the speed of a mule trotting. Fulloway was thrown on the track in front of it and it ran on top of him, life being extinct before he was extricated.

After this accident, I suggested that a device to act as a keeper, to prevent the pin from slipping out, be applied, and, on visiting the colliery a few days later, was pleased to see it put in practice.

I would recommend its application to all dumpers of like construction; its cost is trifling, and it may prevent the recurrence of such accidents as the above.

No. 11.—November 28. William Dunstun, age fifteen, a door-boy employed at Packer colliery, No. 2, was killed by being run over by a trip of cars.

Dunstun's duty was to close the check-doors behind the trip, as it passed in and out along the gangway. His brother, the loader boss, had reprimanded him some time previous about stealing rides on the trips; on this occasion it is not known whether he was riding or running alongside. The driver, feeling a jar, thought a car had jumped the track; stopping to examine he found Dunstun under the second last car, doubled up under the axle and life extinct.

Accidents from the Handling of Explosives.

No. 1.—April 9.—William Davis, age 29, single, a blacksmith employed at Knickerbocker colliery, Philadelphia and Reading Coal and Iron Company, operators, was fatally injured by the concussion from an explosion of dynamite. A tunnel was in progress at a considerable distance from the blacksmith's shop, and, to save time and labor in carrying tools such a distance, a temporary hearth was erected convenient to the tunnel, where Davis sharpened the tools. The miners were blasting with dynamite or giant powder, and were keeping it to the necessary temperature by placing it on the blacksmith's hearth. On the day of the accident a box containing six and one half sticks of dynamite was standing on the hearth, and while Davis was trimming his fire it exploded; although nothing struck him, the concussion, being confined, injured his head so that death ensued on the 21st of the same month, twelve days later.

After this accident, I suggested some improvement in the manner of keeping these explosives up to the required temperature, which, I hope, will prevent similar accidents in future.

No. 2.—May 12. Michael O'Neal, aged twenty-one, single, a laborer employed at Indian Ridge colliery, Philadelphia and Reading Coal and Iron Company, operators, was fatally injured by the premature explosion of a blast. O'Neal was employed as laborer for two miners, and was engaged blasting down top coal. Three holes were drilled, two of which were charged and squibs placed in them, and the miners were engaged charging the third. While O'Neal was in the act of lifting tamping under one of the holes, the lamp in his hat ignited the match, which being behind them they failed to

notice. The shot exploded while all three were within a few feet; the two miners were hurt, and O'Neal received injuries resulting in death the day following. This accident was the result of the senseless practice of putting squibs in holes before being ready to fire them, a practice having much to condemn and little to recommend it.

No. 3.—May 18. John O'Bryen, aged fifty, wife and seven children, a miner employed at Coplay colliery, L. F. Lentz, operator, was killed by a shot exploding before he could reach a place of safety. In the absence of evidence, I ascribe this accident either to imperfect adjustment or manufacture of the squib. The man was in good health, not subject to fits, and stumbling would not account for the accident; if he had stumbled and fell, he would still have had time to rise and reach a place of safety in the time consumed by an ordinary match, and as he did not use coal-oil he could not have saturated the match in handling the squib.

No. 4.—May 19. John Loran, aged thirty-five, wife and three children, a miner employed at Ellangowan colliery, Philadelphia and Reading Coal and Iron Company, operators, was killed by the explosion of a shot, he being within thirty feet. I examined the place and found it in good condition, and from its general aspect formed the opinion that Loran had either cut the match short or turned it down to burn fast. The place being clear of smoke he was not likley to hold the lamp to the squib instead of the match, and he had only to get away thirty feet, on a good road, to be in a heading out of danger. We are very loath to suppose that powder would have run into the match through imperfect manufacture of the squib.

No. 5.—July 31. John Nedzinskie, age twenty-four, single, a laborer, employed at Gilberton colliery, Philadelphia and Reading Coal and Iron Company, operators, was killed by a shot. Nedzinskie and another laborer were employed by Peter Bendrick, a miner, driving gangway on the seven-foot seam, all three being natives of Poland. They had four shots prepared, and Bendrick, after firing three in succession, went to look after getting cars to load, as the laborers could not speak English, and be understood by the drivers. Before going, he told Nedzenskie to wait until the smoke cleared, and then to fire the remaining shot. The miner had just left, when Nedzinskie went in among the smoke and fired the shot, which exploded as he turned to run. Some pieces striking him about the head, inflicted injuries resulting in death the same evening.

After examining the place and hearing the evidence before the coroner, I formed the opinion that Nedzinskie could not see properly for smoke and, being inexperienced, held the lamp to the squib instead of the match, which, according to the miner's testimony, was full length and not turned down at the point.

As the place was clear of gas, and the men were not using coal-oil, I could not account for this accident upon any other theory, unless it were from imperfection in the manufacture of the squib by powder getting into the match.

No. 6.—August 7. George Conway, age twenty-six, wife and two children, a miner, employed at Ellengowan colliery, Philadelphia and Reading Coal and Iron Company, operators, was fatally burned with powder.

Conway, as is usual, kept his powder, oil, &c. in a pillar-heading, and was in the act of filling a cartridge from the keg when the accident occurred. Before lifting the keg, he took his lamp off his hat and hung it as far back as he could reach while sitting, but as the air-current ran in the direction from the lamp to the powder a spark was carried into the cartridge. Both cartridge and keg exploded, burning Conway severely. He, however, lingered until the 15th of the month, when death ensued. Conway was a competent miner, but made the fatal mistake of hanging his lamp to "windward" instead of "leeward" of the powder.

No. 7.—August 17. Terrence Scanlan, age thirty-nine, wife and seven children, a miner, employed at Girard colliery, Philadelphia and Reading Coal and Iron Company, operators, was killed by the premature explosion of a shot.

Scanlan and partner were working in what is known as a back-breast, which was up only a few yards from the heading. Both men had shots prepared, one on each side, intending to fire both together. Scanlan was first ready, and placing the squib in the hole, sat down to wait; in a few seconds the shot exploded, killing him instantly; the partner, being on the other side behind a projection, escaped injury.

In the absence of evidence it is difficult to determine the exact cause of this accident. The men were using gas squibs, the match of which burns without flame, like ordinary touch paper, and as gas was not present at the time, this accident might have resulted from one of the following causes: When Scanlan sat down to wait he would likely sit with his back to the face, that being the position miners generally assume in the face of a steep angled breast. The lamp, if in his hat, would be nearly on a level with the match and by contact might accidently ignite it; the match producing no flame would not attract his attention.

In my opinion, the probable cause was that as the face was only a few yards up, making it very easy to get out of reach, Scanlan thought the match longer than necessary. Instead of tearing it, he burned off part, extinguished it between his finger and thumb, placed it in position and sat down. A spark unnoticed, hung fire, relit the match, and fired the shot.

When miners fire shots in pairs in breasts of this kind, the concussion of the first may extinguish the match of the second and cause the miner on that side to return and relight his shot after the place has been shaken by the explosion and obscured by the smoke of the first. And although I cannot say that Scanlan was actuated by such motives, I see no other advantage in a short match where the hole is dry and the men working by the yard.

No. 8.—December 3. Robert Hyde, age fifty, wife and three children,

a miner employed at Plank Ridge colliery, Philadelphia and Reading Coal and Iron Company, operators, was fatally injured by pieces flying from a shot. Hyde and partner had two shots charged; the partner retired while Hyde fired them. His partner stated, in evidence, that he saw Hyde fire the first and go up to fire the second, which went off at once, the time, he thought, being too short. Hearing Hyde cry for help, he rushed up and found him in convulsions, which were repeated on the way home. His injuries were considered slight, but he died on the 7th—four days later. His own statement showed that the shot exploded before he got six feet from it. In this case we have no means of knowing whether it was carelessness of the miner or imperfection in the squib.

Accidents from Gas.

No. 1.—January 15. William West, age forty-eight, wife and four children, a miner employed at Packer colliery, No. 4, Lehigh Valley Coal Company, operators, was severely burned by an explosion of gas, resulting in death on the 21st, six days later. After examining the place, I interviewed West and obtained the following account of the occurrence:

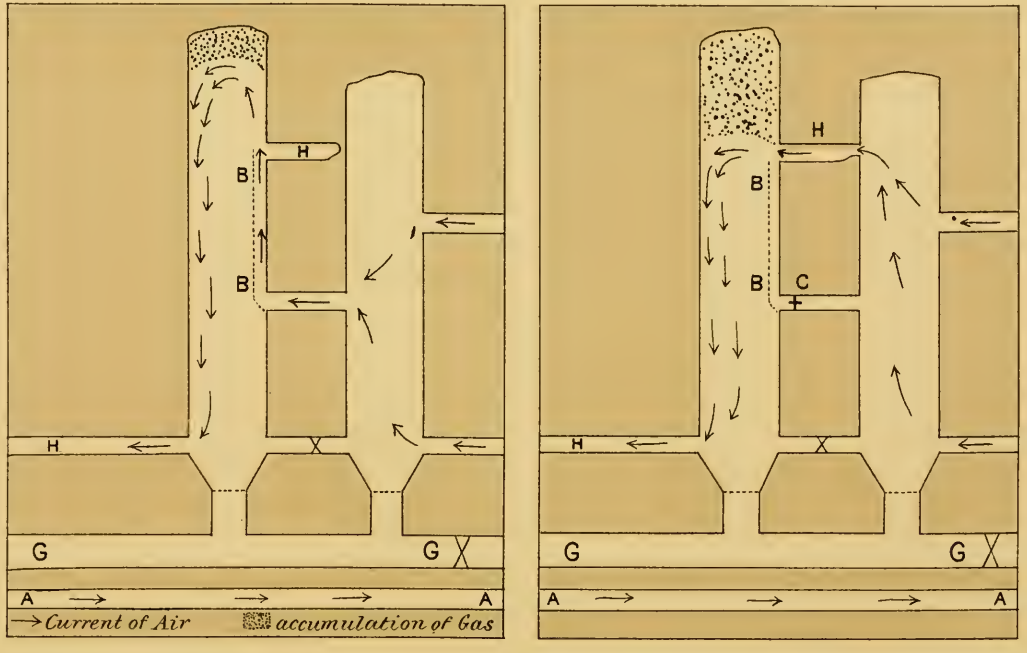
The scene of this explosion was a breast on the east side of the lower lift of the Mammoth seam, which at this part of the basin is in splendid condition, but gives off large volumes of gas. The angle of dip ranging from 25° to 30° the breasts are worked with a sheet-iron slide in the center. The air current entered this breast from the next inside, through the second heading, and was conducted up the inside rib with a brattice; the volume being large, the velocity high, and the direction given to it being towards the face, it kept the place in working condition. After sweeping nearly to the face it returned down the breast, and out at the lower and only heading through the outside pillar.

At a point about fifteen yards from the face and above the end of the brattice, West drove another heading towards the inside breast, and on Saturday evening got it through, but not widened to full size; before going home he took a piece of canvas and temporarily closed the heading below, thus turning the current through the new opening. Previous to this, West had received orders that when the new heading was through he should permanently close the one below and move the brattice up on the new one, to direct the current to the face as before. West went home with the intention of doing this on the Monday following.

When the fire-boss made his usual examination on Monday morning, he found a large volume of gas in West's working place, and made the usual mark on the danger board, opposite West's number. When West and his two partners came down to work they saw their number marked "gas," and, suspecting the cause, went in to prepare for its removal, without waiting to see the fire-boss, who was in the west side making his examination. On reaching the breast they proceeded up as far as the brattice, where West started the two partners to take it down for removal, while he examined and ascertained the quantity of gas to be removed. Taking the

DIAGRAM, NO. 1.

Fig. 1, Before. *Fig. 2, After.*



REFERENCE.—A. Air-way. G. Gangway. H. Headings. B. Air brattish. X. Stopings. C. Canvas placed by West to force current to heading at H, the arrows show direction of current, and dotted space the accumulation of gas, before and after, West made the change.

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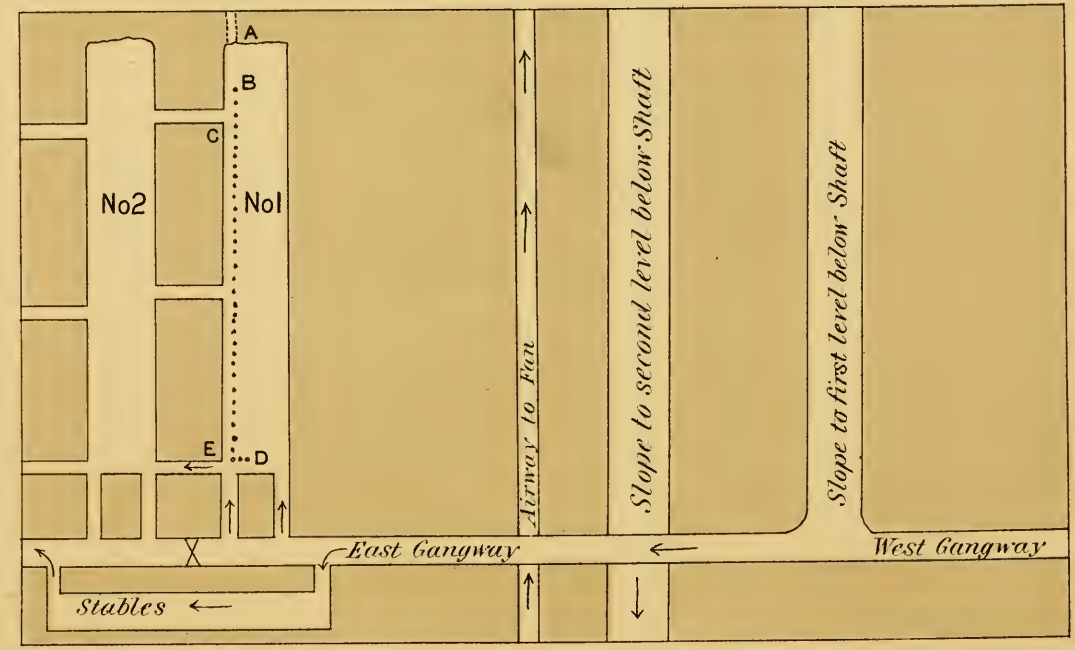
DIAGRAM, NO. 2.

To illustrate accident from gas No. 2, at Wm. Penn Colliery.



REFERENCE.—Door used at night to Ventilate Stables. B. Where Bissel ignited the gas. D. Where he was found. C. Where Kurtz was burned. E. Where he was found. A. Location of heading to be driven, ...manway being built up.

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safety-lamp in one hand and the open light in the other, he proceeded toward the face, and after going as far as *he thought* prudent, he raised the open light to blow it out; as he raised the light the whole place blazed up, the explosion filling it with flame. West instinctively threw himself on the sheet-iron and slid down the chute, but not in time to escape being burned; the two partners, being at the lower end of the brattice, received only slight injury.

If West had waited until the fire-boss removed the cause of danger he would have complied with the law. If he had only seen him and ascertained how far down the gas had accumulated he would not have taken the open light above the heading. When West changed the current through the upper heading, instead of striking toward the face and dislodging the gas, it merely shot across and down the outside rib, the strong current tending rather to dam back the gas in the face than to clear it out, which accounted for the larger accumulation, although the current was entering twenty yards nearer the face.

If West on opening the new heading had closed it again, instead of the one below, leaving the current in the old direction, the place would have been in the usual condition on Monday morning, provided the fan had not been slowed during the interval.

This accident resulted from a combination of circumstances, all tending in one direction, and not wholly the fault of the miners; still, the principal cause was carrying open lights where only safety-lamps should be used. For the purpose of showing how simply changes in ventilation can be made, resulting in dangerous accumulations of gas, I have illustrated this accident in Diagram No. 1. Fig. 1, showing the direction of the current before, and Fig. 2 after, West made the change, on the Saturday evening before the explosion.

No. 2.—March 12. Henry Kurtz, age twenty-one, single, a laborer, employed at William Penn colliery, William Penn Coal Company, operators, was fatally injured by an explosion of gas.

This accident occurred in a breast on the Mammoth seam which had been finished a year before. It was the first breast on that gangway, was thirty feet wide, thirty feet high, and up about seventy-three yards from the gangway, on an angle of forty-five degrees. Being next the slope, the outside pillar was solid; the inside one having three headings, one of which was within six yards of the face. After the breast was drawn empty the boss intended to drive a hole up through the chain-pillar, and fill it with rock from a tunnel which was driving on the lift above.

In emptying the breast the manway was destroyed, and a new one had to be built up the inside pillar to reach the face and start driving the hole.

Henry Bissel, a miner, with Kurtz as laborer, was employed at this work, which proceeded without accident until a point was reached some twelve feet above the upper heading. While Bissel was standing on the second juggler-prop, above the heading, scraping the loose dirt from the

prop-hole to measure for another, his open light upon his hat fired the gas. The explosion threw Bissel down the breast, where he was found, with his face and hands burned, and his back hurt from the fall. Kurtz, who was in the heading, and could not get clear of the flame, was severely burned. He managed, however, to scramble down the manway, being found in the lower heading. Bissel, whose injury was principally from the fall, recovered, but Kurtz's injury, resulting from the fire, proved fatal, death ensuing on the 14th, two days later.

After considering all the circumstances involved in this case, I formed the opinion that proper precautions had not been taken to guard against accident. No attempt had been made to improve the ventilation by closing the door between it and the next breast, and closing the pillar-headings as they were reached, or using safety-lamps above the last one. Because, if gas was present in the face, the men were sure to work their way into it, as examinations could only be made from the manway as it was built, and any agitation by a fall, or otherwise, might have brought it on the lights.

It appears the mine-boss did not suspect the presence of gas, as no attempt at examination had been made, and no precautions had been taken. I brought suit before a justice of the peace against the mine-boss. The complaint not being sustained, in the opinion of the justice, the case was dismissed.

Diagram No. 2 is a plan of the breast, showing the position of the men before and after the explosion.

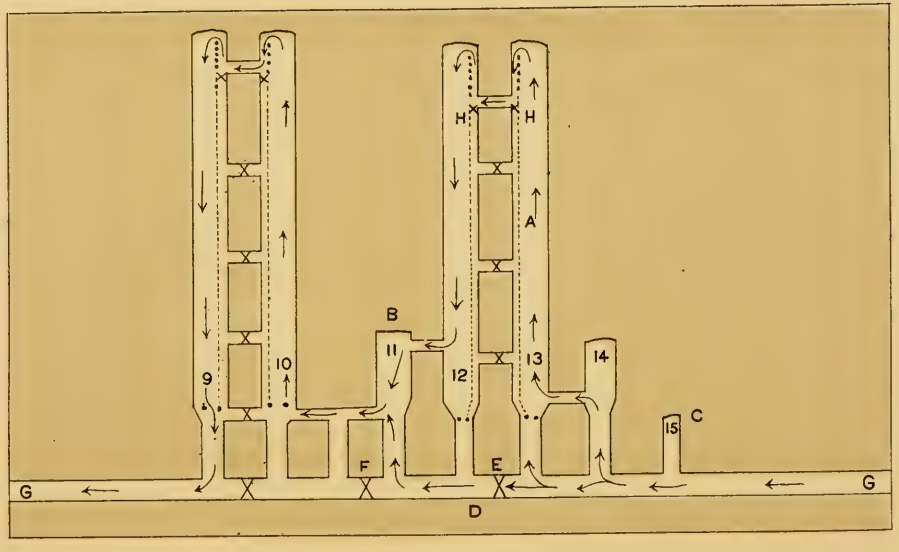
No. 3.—March 22. James Leishman, age forty-seven years, wife and seven children, and Martin Toohey, age twenty-two, single, both miners, employed at Packer colliery No. 2, Lehigh Valley Coal Company, operators, were fatally injured by an explosion of gas. Leishman expired on the 23d, and Toohey on the 28th of the same month.

The location of this explosion was a counter gangway, this section having been laid out for panel mining by narrow twin breasts at intervals along the gangways, one pair of which was driven up eighty-seven yards and stopped some months before. These breasts gave off considerable gas and canvas was hung across the gangway between them to force the current up the one and down the other, and was left hanging to keep them clear. This canvas, having hung without repair since the breasts were worked, became of little service for its original purpose, because the resistance encountered in passing through these long breasts was greater than in passing this partial obstruction, consequently a very small portion of the current reached the upper heading of the breasts.

At the time of the accident, James Leishman and his son worked in the next breast outside, which was only up above the first heading. Another canvas was placed across the gangway outside of this, so that Leishman's breast was ventilated partly from the gangway and partly from what should

DIAGRAM, NO. 3.

To illustrate accident from gas No. 3, at Packer Colliery No. 2.



REFERENCE.—A. Place where Toohey's pick was found, and where it is supposed that he ignited the gas. B. Where the Lieshman's worked. C. Where Toohey worked. D. Where the men met on the gangway, and the Lieshman's and Murray were burned. E. The old canvas. F. Canvas for Lieshman's Chamber. H. Canvas to ventilate face. G. Gangway. Direction of air currents.

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have come from the twin breasts. Martin Toohey and his partner worked inside.

On the morning of the accident, after the men had started work, Toohey came along with a pick and drill and, stopping at the inside twin breasts, told the loader that he was going up there to take plank from the man-way, as they did not effect the ventilation below the upper heading. The loader told him to see the fire-boss first, as there might be gas up there. Regardless of the advice, he went up, when an explosion followed, and Toohey rushed down to the gangway, crying that he was burned. The concussion extinguished the lights, when a second and slighter shock followed. The two Leishmans and those inside all made for the gangway, and hearing Toohey crying, they all met at the platform in great confusion and excitement. When Toohey's partner struck a match to obtain light, a third and heavier explosion occurred, which burned the two Leishmans, the loader, and Toohey's partner, the two latter very slightly, but the two Leishmans and Toohey severely. Young Leishman, however, recovered after several weeks' confinement.

The evidence obtained in this case was very contradictory, but nearly all testified to three concussions, although it is difficult to account for more than two. From examination of the place and testimony of the witnesses, I formed the opinion that the law had been violated, as the fan had been stopped some few days previous while ice was being cut out of the air-way, and no examination of such places made afterwards. As the law directs that all *workings* shall be kept clear of standing gas, the only question in my mind was whether or not places which had been temporarily abandoned constitute a *working* within the construction of the act. I brought suit against the boss for allowing standing gas and not keeping that *careful watch* contemplated by the act. My opinion was sustained by the court, and the trial ended in conviction.

No. 4.—August 10. Thomas S. Williams, age forty-four, wife and three children, and Hugh Edwards, age thirty, wife and two children, both miners employed at Packer colliery, No. 4, Lehigh Valley Coal Company, operators, were fatally burned by an explosion of gas. Williams expired on the 12th and Edwards on the 17th of the same month.

Being in the vicinity at the time, I examined the place shortly after the explosion, and found it to be a breast on the west gangway of the fifth lift. The coal gives off considerable gas, but the air current was strong and the return heading within twenty feet of the face.

On the morning of the accident the fire-boss found no gas as high as he could reach with the safety-lamp on a rod, and the men worked until noon. Having two shots charged before firing they examined for gas with the safety-lamp on the ring of the blasting-needle. Finding none as high as they could reach, they lighted one shot and retired into the return heading. After the shot exploded a heavy fall of top occurred, followed immediately by an explosion of gas, the force of which drove both men

through the heading into the next breast, which was empty. Edwards, falling down the man-way, managed to reach the gangway, but Williams was found on the battery, jammed among some loose coal and was with difficulty extricated.

The cause of this accident was the fall driving down gas from some recess in the top, which was carried through the heading on to the open lights. It would probably have been prevented by the exclusive use of safety-lamps.

Accidents from Boilers and Machinery.

No. 1.—February 7. Bernard Hellenthall, age thirty-eight, wife and two children, a fireman at Packer colliery, No. 1, Lehigh Valley Coal Company, operators, was killed by the explosion of one of the boilers under his charge.

In the absence of direct testimony it is difficult to determine the exact cause of this accident. This boiler and others in the same range had been used for years, and had undergone considerable repair at different times.

The evidence given by the fireman's assistant, in connection with the time at which the accident occurred, would lead to the opinion that there was plenty of water in the boilers, because the explosion occurred shortly after the machinery had been started after dinner, and it was customary to feed up the boilers while the colliery was idle at that time.

On the other hand, some of the experts testified that if plenty of water had been in the boiler when it burst, the fire would have been extinguished instead of the half being left burning.

Others pretended to detect a trace of the surface level of the water by a mark along the plates, showing that the water had been below the lower gauge at the time of or shortly before the explosion, and that the boiler did not give way at the weakest part or where it might have been expected to burst; and although I could see no reason why a boiler should be expected to burst at all, still I could see parts of the boiler which looked even worse than where it parted.

The expert testimony, though very conflicting, tended towards the opinion that the explosion resulted from *expansion* from excessive firing with low water or by *contraction* by rapid feeding under like conditions.

One fact, standing out in bold relief above all opinion, showed that the boiler had been long in use, had been often repaired, and was loaded to resist a pressure of eighty pounds to the square inch. The inspector's certificate classed the boiler as No. 3, which placed its working pressure at forty-five pounds, while the valve was loaded to blow off at eighty. The boiler inspector, at the last inspection, suggested that some repairs be made by patching and bolting the sheets over the fire. This was done. Whether or not these repairs removed the boiler from class 3 and placed it in class 2 I am not able to determine.

No. 2.—April 4. James Peoples, age sixteen, a slate-picker working at West Bear Ridge colliery, Myers, McCreary & Co., operators, was killed by machinery in the breaker.

The engineer was trying to throw off a belt while in motion but failed, when he went for a lever for the purpose. On returning he found that Peoples had climbed up among the machinery and was standing with his back to the shaft. Immediately his clothes caught the shaft, which was running eighty revolutions per minute. He was whirled around at that velocity, and life was extinct before the machinery could be stopped.

The evidence showed that his duties did not require him to be in the vicinity of the shaft.

No. 3.—June 2. Peter Bierstien, aged ten, a slate-picker employed at Connor colliery, Philadelphia and Reading Coal and Iron Company, operators, was killed by being caught in a counter-screen in the breaker.

From the evidence offered at the coroner's inquest it appears there was no coal running in the chute where the boy worked, and he went up to the counter-screen, for what purpose I could not learn, as he had no business there. It is not known how he got into the screen. The boy in attendance, on turning around, saw the accident and gave the alarm. The machinery was immediately stopped and Bierstien extricated, but life was extinct before he could be removed to his home.

No. 4.—September 9. William Biernstiel, aged seventeen, a laborer employed at Primrose colliery, Primrose Coal Co., operators, was fatally injured by the explosion of the boilers. He was scalded by steam and hot water, and injured by flying débris from the wreck, from the effects of which he died the same evening.

I examined the wrecked boilers, and found the sheets in some places only one eighth of an inch in thickness, while in other places a scale or deposit had accumulated of one sixteenth in thickness. The testimony of the superintendent showed that the boilers had been repaired in 1876. He, however, produced the boiler inspector's certificate, issued within the legal period, of their sufficiency for the pressure carried.

No. 5.—November 7. William Wagner, aged twenty-nine, wife and one child, a machinist employed at Knickerbocker colliery, Philadelphia and Reading Coal and Iron Company, was fatally injured by the bursting of a fly-wheel.

Wagner was engaged erecting an engine to hoist coal up a plane on to the breaker. After the engine was in position, and before the hoisting ropes were put on the drum, Wagner was running the machinery to test how it worked, and to learn especially the efficiency of the brake. While running at high speed the fly-wheel suddenly burst, throwing some of the segments one hundred feet distant, one of the pieces striking Wagner as he stood at the starting-bar, inflicting injuries resulting in death an hour later. The probabilities were that the sudden application of the brake ruptured the wheel, and on removing the resistance and increasing the speed it was unable to resist the certrifugal force, and hence flew into pieces. The engine, from its construction, was not adapted for high speeds.

No. 6.—December 15. John Bummerbach, age thirty-five, wife and two

children, a fireman, working at Stanton colliery, Miller, Hoch & Co., operators, was fatally injured by the bursting of a boiler.

The boiler had been recently examined, and certified to be in good condition. It, however, cracked across one of the bottom sheets, and while Bummerbach was attempting to draw the fire from under it the explosion occurred, scalding him severely. He died on the 20th of the same month. The evidence offered before the coroner was not sufficient to determine the cause of this accident.

Accidents from Miscellaneous Causes.

No. 1.—April 2. George Metz, age thirty-three, single, a laborer, employed at Turkey Run colliery, Philadelphia and Reading Coal and Iron Company, was fatally injured by falling into the dump-chute of the breaker.

The coal having jammed in the chute, Metz took a bar and started it. When the coal moved he stumbled and fell into the chute, and was carried down with the coal.

His injuries were considered very slight at the time, as he walked home without assistance, but he gradually grew worse. He expired June 2d, a period of two months after the accident, injury to the kidneys being the cause of death.

TABLE *showing the nationality of the persons* FATALLY INJURED *in the Shenandoah District during the year 1883:*

NATIONALITY.	Men.	Boys.	Total.
English,	6	2	8
Welsh,	3	1	4
Scotch,	1	. . .	1
Irish,	20	1	21
German,	5	2	7
Polish,	3	1	4
Hungarian,	2	. . . .	2
Total,	. . . .	. . .	47

TABLE *showing the nationality of the persons* INJURED *in the Shenandoah District during the year 1883:*

NATIONALITY.	Men.	Boys.	Total.
English,	19	2	21
Welsh,	14	2	16
Scotch,	1	. . .	1
Irish,	44	6	50
German,	28	1	29
Polish,	15	. . . .	15
Hungarian,	2	. . . .	2
Total,	. . . .	. . . .	134

REGISTER OF FATAL CASUALTIES—SHENANDOAH DIVISION.

4 MINE INS.

Number.	DATE.	Names	Colliery.	Occupation.	Age.	Married or single.	Children.	Remarks.
1	Jan. 15	William West,	Packer, No. 4,	Miner,	48	Married,	4	Explosion of gas in breast.
2	Feb. 7	Bernard Helenthal,	Packer, No. 1,	Fireman,	38	Married,	2	Killed by explosion of boilers.
3	22	Martin Cunningham,	Packer, No. 2,	Laborer,	21	Single,		Killed by a fall of coal.
4	28	James Tierney,	Packer, No. 3,	Miner,	40	Single,		Fatally injured by fall of coal; died 7th instant.
5	Mar. 5	Darby Hennegen,	Packer, No. 2,	Laborer,	29	Single,		Fatally injured by striking his head against top of slope.
6	12	Henry Kurtz,	William Penn,	Laborer,	21	Single,		Fatally injured by explosion of gas; died 14th instant.
7	13	Thomas Early,	Packer, No. 3,	Bottom man,	18	Single,		Killed by fall by rope breaking.
8	14	John Mecke,	West Lehigh,	Laborer,	23	Single,		Killed by fall of coal at face of gangway.
9	15	John Curran,	Glendon,	Miner,	57	Married,		Fatally injured by fall of top coal; died same day.
10	19	John Canfield,	Cuyler,	Laborer,	30	Married,	3	Killed; run over by dirt dumper.
11	22	James Lelshman,	Packer, No. 2,	Miner,	47	Married,	7	Fatally injured; explosion of gas; died 23d instant.
12	22	Martin Toohey,	Packer, No. 2,	Miner,	22	Single,		Fatally injured; explosion of gas; died 28th instant.
13	31	Joseph Kane,	Packer, No. 4,	Loader boss,	32	Married,	1	Fatally injured; squeezed between cars; died same day.
14	Apr. 2	George Matz,	Turkey Run,	Laborer,	35	Single,		Fatally injured by falling into dirt chute of breaker.
15	4	James Peoples,	West Bear Ridge,	Slate picker,	16	Single,		Killed; caught by shaft in breaker.
16	9	William Davis,	Knickerbocker,	Blacksmith,	29	Single,		Fatally injured by explosion of dynamite.
17	12	Thomas Eagan,	West Bear Ridge,	Miner,	32	Married,	3	Killed by fall of top coal at face of breast.
18	18	Anthony Lynch,	Bear Run,	Miner,	38	Married,		Killed by fall of slate at face of breast.
19	25	William Lawson,	Kehley Run,	Coupler boy,	16	Single,		Fatally injured while attempting to uncouple mine car.
20	May 12	Michael O'Neil,	Indian Ridge,	Laborer,	21	Single,		Fatally injured by the prematnre discharge of shot.
21	18	John O'Brien	Coplay,	Miner,	50	Married,	7	Killed; premature discharge of shot.
22	19	John Loran,	Ellangowen,	Miner,	35	Married,	3	Killed; prematnre discharge of shot.
23	June 2	Peter Blersteln,	Conner,	Slate picker,	10			Caught in counter screen of breaker.
24	6	Charles Hylton,	Packer, No. 3,	Machinist,	49	Married,		Run over by slope car.
25	July 31	John Nedinski,	Gilberton,	Laborer,	24			Fatally injured; ignited squib while lighting match.
26	Aug. 7	George Conway,	Ellangowen,	Miner,	26	Married,	2	Burned with powder; died 13th instant.
27	10	John G. Williams,	Packer, No. 4,	Miner,	44	Married,	3	By explosion of gas; died 12th instant.
28	10	Hugh Edwards,	Packer, No. 4,	Miner,	30	Married,	2	By explosion of gas; died 17th instant.
29	11	Dennis Carduff,	Packer, No. 2,	Laborer,	35	Married,	5	Fatally injured; fell under car in slope; died 14th instant.
30	17	Terry Scanlan,	Girard,	Miner,	39	Married,	7	Killed by premature explosion of shot.
31	Sept. 3	Patrick Garvey,	Cuyler,	Laborer,	21	Single,		Fatally injured by fall of top slate.
32	9	William Biernstiel,	Primrose,	Laborer,	17	Single,		Killed by explosion of boilers.
33	10	William Muldowney,	Glendon,	Miner,	33	Married,	1	Fatally injured by fall of top slate; died November 12, 1883.
34	13	William Simpsll,	Ellangowen,	Door-boy,	15			Fatally injured by being caught between cars, causing amputation of leg.
35	28	James Cosgrove,	Packer, No. 3,	Door boy,				Killed by fall of top coal in breast.
36	Oct. 3	Charles Gillespie,	Coal Run,	Miner,				Killed by fall of top coal in breast.
37	24	John Roberts,	Honey Brook, No. 5,	Stable-boy,				Killed; attempting to board locomotive while in motion.
38	Nov. 7	William Wagner,	Knickerbocker,	Machinist,	29	Married,	1	Killed by bursting of fly-wheel.
39	12	George Whitaker,	Indian Ridge,	Miner,	20	Single,		Fatally injured.
40	14	William Norris,	Plank Ridge,	Miner,	24	Single,		Fatally injured by fall of slate; died 15th instant.
41	14	John Fullaway,	Ellangowen,	Driver,	26	Single,		Killed by falling under dumper.

REGISTER OF FATAL CASUALTIES—SHENANDOAH DIVISION—Continued.

Number.	DATE.	Names.	Colliery.	Occupation.	Age.	Married or single.	Children.	Remarks.
42	Nov. 28	William Dunstan, ...	Packer, No. 2, . . .	Door-boy, . .	15	Single, . .	. .	Killed; fell under trip, and run over.
43	30	John Muldoon, ...	Ellangowen, ...	Miner, ...	44	Single, . .	.	Killed by fall of slate.
44	30	Enoch Perry, ...	North Mahanoy, . .	Miner, ...	45	Married, .	2	Killed by falling slate while robbing pillar.
45	Dec. 3	Michael Brennan, ...	Glendon, . . .	Miner, ...	36	Married, .	6	Killed by fall of top slate in breast.
46	3	Robert Hyde, ...	Plank Ridge, . . .	Miner, ...	45	Married, .	3	Fatally injured by premature discharge of shot; died 7th instant.
47	15	John Bummerbach, . . .	Stanton, ...	Fireman , . . .	85	Married, .	2	Fatally injured by bursting of boiler; died 20th instant.

REGISTER NON-FATAL CASUALTIES—SHENANDOAH DIVISION.

No.	DATE.	Names.	Collieries.	Occupation.	Remarks.
1	Jan. 2	Patrick McGee,	Kohinoor,	Miner,	Leg injured by fall of coal in breast.
2	2	Joseph Cook,	St. Nicholas,	Miner,	Slightly burned; went down manway with open light and ignited gas.
3	4	T. J. Pierce,	Draper,	Loader boss,	Head injured; squeezed between two mine cars.
4	15	Jeffrey Williams,	William Penn,	Miner,	Arm broken and burned by an explosion of gas.
5	15	Henry Stephany,	William Penn,	Miner,	Burned and bruised by an explosion of gas.
6	16	William Weed,	William Penn,	Miner,	Face cut; struck by coal from blast.
7	16	William Habergast,	Mahanoy Jig House,	Jigman,	Leg broken; fell from platform.
8	27	Conrad Zang,	Honey Brook,	Carpenter,	Ribs broken; fell from drum.
9	30	Sebastian Stics,	Bear Run,	Miner,	Injured by blast blowing through heading from next breast.
10	30	Daniel Confair,	Elmwood,	Dumper man,	Bone in hand broken; caught between timber.
11	Feb. 1	Peter Burtzel,	North Mahanoy,	Miner,	Face and hands burned by an explosion of gas.
12	6	Edward Kearney,	Primrose,	Miner,	Head and back injured by a fall of coal.
13	6	Henry Bruhali,	Coal Run,	Miner,	Leg bruised; struck by a piece of coal.
14	7	Thomas Thacher,	Coal Run,	Miner,	Burned with powder by the explosion of a cartridge.
15	9	George Coluskie,	Kohinoor,	Miner,	Body injured by a fall of coal.
16	9	John McGee,	West Lehigh,	Driver,	Kidneys injured; squeezed between car and platform of chute.
17	10	Jacob Stien,	East Bear Ridge,	Miner,	Head and side injured by a fall of coal.
18	10	Harry Starbuck,	Girard Mammoth,	Bottom man,	Foot injured; caught under wheel of car.
19	12	Ed. Holland,	Draper,	Miner,	Hand injured by a fall of coal.
20	21	John Pool,	West Shenandoah,	Loader,	Fingers broken; caught by a lump of coal.
21	22	William Evans,	St. Nicholas,	Miner,	Burned by the explosion of gas.
22	22	David Jones,	St. Nicholas,	Miner,	Burned by the explosion of gas.
23	March 7	John Casper,	East Bear Ridge,	Miner,	Leg broken by a slip of coal.
24	8	Michael Curley,	Stanton,	Miner,	Head and hands cut by coal from a shot.
25	9	James Jenkins,	Tunnel Ridge,	Miner,	Eye and chin cut by a fall of coal.
26	12	Henry Beissel,	William Penn,	Miner,	Face and hands burned by an explosion of gas.
27	14	Henry Reeves,	Ellengowan,	Driver,	Head severely squeezed; caught between cars.
28	14	James McHugh,	Turkey Run,	Laborer,	Leg injured; caught between cars.
29	14	Joseph Smith,	Knickerbocker,	Loader,	Leg broken; struck by a piece of coal.
30	16	Thomas Gallagher,	West Lehigh,	Miner,	Kidneys injured; struck by a piece of coal from shot.
31	21	Adam Haley,	Turkey Run,	Door-boy,	Arm broken; jammed between door frame and car.
32	21	Charles Smith,	Draper,	Miner,	Slightly injured by a fall of coal.
33	22	William Leishman,	Packer, No. 2,	Miner,	Burned by the explosion of gas.
34	22	John Murray,	Packer, No. 2,	Miner,	Burned by the explosion of gas.
35	22	William McAndrew,	Packer, No. 2,	Miner,	Burned by the explosion of gas.
36	27	John Silgrad,	Girard,	Miner,	Back injured; struck by a piece of coal.
37	April 2	Ed. Colligan,	Hammond,	Miner,	Leg broken by mine cars.
38	4	Thomas George,	Packer, No. 4,	Miner,	Leg broken by a fall of coal.
39	10	Patrick Kelley,	Glendon,	Miner,	Face and hands slightly burned by the explosion of gas.
40	17	Robert Goff,	Hammond,	Slate-picker,	Hand mashed by machinery.
41	19	Joseph Kipe,	Webster,	Miner,	Back injured by a fall of coal.
42	23	Fred. Slingmire,	Boston Run,	Laborer,	Leg broken by mine car.
43	23	Enoch Kronk,	Schuylkill,	Miner,	Face cut by piece flying from shot.
44	24	John Boyle,	Honey Brook, No. 5,	Bottom man,	Leg crushed, causing amputation.
45	27	John Friday,	Schuylkill,	Miner,	Leg broken; foot caught in switch causing him to fall.
46	30	John H. Davis,	Turkey Run,	Miner,	Back and leg injured by a fall of coal.

REGISTER OF NON-FATAL CASUALTIES—SHENANDOAH DIVISION—Continued.

No	DATE.	Names.	Collieries.	Occupation.	Remarks.
47	May 1	William C. Gallagher,	Honey Brook, No. 1,	Laborer,	Back injured by a fall of coal.
48	9	John Miller,	Mahanoy City,	Miner,	Small bone broken below knee; caught between coal and buggy.
49	12	John McCormick,	Indian Ridge,	Miner,	Cut and burned by the premature discharge of a blast.
50	12	John Toland,	Indian Ridge,	Miner,	Cut and burned by the premature discharge of a blast.
51	14	John Koch,	Shenandoah City,	L. conductor,	Hand crushed; caught between coupling and hitching plate,
52	17	James Fitzsimmons,	William Penn,	Miner,	Leg broken by a piece of coal rolling on it.
53	21	John Bonner,	St. Nicholas,	B. holster,	Arm and ribs broken; fell down hoisting tower of breaker, height 65 feet.
54	21	Hugh Murphy,	Girard,	Miner,	Thigh broken by fall of coal in breast.
55	25	John Gittens,	Glendon,	Miner,	Head cut and body bruised; run over by empty cars in tunnel.
56	29	Patrick O'Brien,	St. Nicholas,	Miner,	Slightly burned by gas in breast.
57	30	Thomas Rhoder,	West Bear Ridge,	Dirt dumper,	Leg injured; run over by dumper.
58	June 2	Samuel Common,	Turkey Run,	Miner,	Shoulder and thigh injured by chute rushing upon him.
59	4	Daniel Whitely,	Hammond,	Miner,	Loins and back bruised by fall of coal.
60	7	Peter Breck,	Kehley Run,	Miner,	Ankle dislocated by a piece of coal striking him.
61	11	James Welsh,	Mahanoy City,	Miner,	Burned with powder; spark falling in powder keg.
62	11	Robert Welsh,	Mahanoy City,	Miner,	Burned with powder; spark falling in powder keg.
63	13	Enoch Thomas,	Honey Brook, No. 4,	Miner,	Back bruised by fall of coal.
64	22	Benjamin Lewis,	Packer, No. 4,	Miner,	Leg broken by fall of coal.
65	July 2	Thomas Kilpatrick,	East Bear Ridge,	Laborer,	Wrist injured; caught by dirt dumper.
66	14	Mica Valshince,	Kohinoor,	Miner,	Back injured by a fall of coal.
67	16	Peter Wentz,	Coal Run,	Top man,	Ribs broken by falling under car.
68	18	Daniel Knittle,	Girard,	Laborer,	Shoulder dislocated by falling from car
69	18	George Kilgore,	Mahanoy City,	Boss,	Face, neck, and hands burned by explosion of gas.
70	Aug. 1	John Bryant,	Hammond,	Miner,	Face and hands burned by explosion of gas.
71	1	Robert Todd,	Girard,	Loader,	Leg fractured; caught between bumpers of cars.
72	1	John Fuer,	Draper,	Miner,	Slightly burned by explosion of gas.
73	8	Mike Yerks,	East Bear Ridge,	Laborer,	Leg broken; caught by bumper of cars.
74	8	Joseph Boehm,	Coal Run,	Miner,	Head and neck cut; fall of coal.
75	13	John Cluff,	Packer, No. 2,	Fire-boss,	Severely burned by the explosion of gas.
76	13	William Parfit,	Packer, No. 2,	Miner,	Severely burned by the explosion of gas.
77	13	Anthony Morlekies,	Packer, No. 2,	Laborer,	Slightly burned by the explosion of gas.
78	14	James Davis,	Packer, No. 4,	Miner,	Head and back injured by a fall of coal.
79	16	William Parfit,	Draper,	Door-boy,	Leg broken while riding on cars.
80	17	Peter Eringberger,	Coal Run,	Miner,	Leg severely bruised; fall of top slate.
81	17	William McDonald,	Hammond,	Driver,	Wrist broken; caught between bumpers of cars.
82	18	John Barry,	Turkey Run,	Miner,	Leg injured by coal rolling off pillar.
83	18	John Brennan,	Turkey Run,	Door-boy,	Head and shoulders injured; caught between bumpers of cars.
84	20	William Griffiths,	Ellengowan,	Slate picker,	Collar bone broken; run down by dumper.
85	21	Ferd. Schan,	Turkey Run,	Laborer,	Leg broken by a fall of coal.
86	23	George Cunnis,	William Penn,	Starter,	Eye blown out, and head severely cut by a premature blast.
87	24	Michael Federspiel,	West Shenandoah,	Miner,	Back injured by a fall of coal.
88	24	Jacob Heisenberger,	West Shenandoah,	Miner,	Hip and ankle dislocated by a fall of coal.
89	25	John Early,	Packer, No 3,	Miner,	Head and back injured by a fall of coal.
90	27	Fred. Brennan,	Turkey Run,	Miner,	Ankle broken by a fall of coal.
91	27	Thomas Rice,	Kohinoor,	Miner,	Ankle dislocated by a fall of coal.
92	30	John Phillips,	Kohinoor,	Laborer,	Back injured by a fall of coal.

93		30	Charles Houk,	Kehley Run,	Outside laborer,	Body severely squeezed between cars on top of slope.
94	Sept.	1	Patrick Cummings,	Kohinoor,	Miner,	Face, hands, and breast burned by the explosion of powder.
95		4	John Deltrich,	Plank Ridge,	Top man,	Wrist broken; caught between wagon and cage.
96		6	Benjamin Welsh,	Draper,	Miner,	Face and hands burned by explosion of powder.
97		6	Patrick Mullahey,	Indian Ridge,	Rock man,	Arm broken; fell off dumper.
98		8	Condy Gildea,	Honey Brook, No. 5,	Driver,	Hips severely squeezed between cars.
99		8	John Dowling,	Shenandoah City,	Driver,	Leg broken; fell from dumper.
100		8	William Dorsey,	Girard Mammoth,	Laborer,	Collar bone and wrist broken; fell under cars.
101		10	John Moorneen,	Coal Run,	Top man,	Finger cut off; fell under cars.
102		13	William Campson,	Ellengowan,	Miner,	Shoulder and back injured by fall of coal.
103		11	Thomas Grady,	Knickerbocker,	Door-boy,	Leg broken; caught between cars.
104		18	William F. Horn,	Indian Ridge,	Powder-boy,	Arm broken; caught between cars.
105		26	Casper Krautz,	Glendon,	Repairman,	Burned by exposion of gas.
106		27	Frank Kline,	Tunnel Ridge,	Miner,	Face and hands burned by explosion of gas.
107		29	Anthony McLauchlin,	Packer, No. 2,	Loader,	Leg broken, fell down chute.
108	Oct.	2	Andrew Gillespie,	Honey Brook, No. 4,	Miner,	Arm broken by a fall of top coal.
109		3	John Matthewman,	Glendon,	Miner,	Back broken by a fall of top coal.
110		8	John Schistle,	Kohinoor, No. 2,	Miner,	Leg broken by a fall of slate.
111		10	George Thomas,	Bear Run,	Carpenter,	Arm broken and ankle dislocated.
112		15	John L. Thomas,	Glendon,	Miner,	Severely burned by the explosion of gas.
113		23	John Gilmore,	Glendon,	Miner,	Slightly burned by the explosion of gas.
114		23	William Flaherty,	Turkey Run,	Laborer,	Wrist broken and head cut.
115		25	John Dawson,	Knickerbocker,	Engineer,	Fell on sharp bar; injured internally.
116		26	George Ridley,	Kohinoor,	Fire-boss,	Arm broken by fall of coal.
117		27	Daniel Leary,	Mahanoy City,	Slate-picker,	Arm broken and side cut; fell on revolving screen.
118		27	Anthony Monaghan,	Connor,	Miner,	Thigh-bone fractured by fall of coal.
119		30	Joseph Yates,	North Mahanoy,	Miner,	Head cut; fall of rock.
120		31	Thomas Moore,	Turkey Run,	Miner,	Leg broken; fall of coal.
121	Nov.	5	Patrick Hogan,	Gilberton,	Loader,	Injured by falling from platform to railroad track.
122		5	Michael Ryan,	Mahanoy City,	Miner,	Face, side, and hands cut by explosion of shot.
123		6	Frederick Fisher,	Elmwood,	Rock Loader,	Neck and breast bruised; caught between bar and chute.
124		10	Patrick Doherty,	Cuyler,	Miner,	Head cut and shoulder dislocated by a fall of coal.
125		10	William Hart,	Kohinoor,	Miner,	Head and back bruised by a fall of coal.
126		13	Ellis Lewis,	William Penn,	Driver,	Leg broken; jammed between plank and car.
127		16	James Brennan,	Knickerbocker,	Miner,	Arm broken; struck by hammer while holding drill.
128		23	Patrick Lynch,	Connor,	Miner,	Leg fractured by a fall of coal.
129		27	William Watkins,	Draper,	Laborer,	Leg injured; jammed against timber.
130	Dec.	19	William Brennan,	East Bear Ridge,	Laborer,	Collar-bone broken.
131		19	Patrick Boland,	Connor,	Slate-picker,	Ribs fractured; fell down chute.
132		19	Thomas Kelly,	Glendon,	Door-boy,	Arm broken; jammed between cars and door-frame.
133		20	Michael Donahue,	William Penn,	Miner,	Body injured by a fall of coal.
134		31	Andrew Sable,	West Bear Ridge,	Laborer,	Leg broken; caught while pushing rock down chute.

COMPARATIVE STATEMENT OF CASUALTIES, TONNAGE, AND EMPLOYEES, FOR FOUR YEARS, IN SECOND OR SHENANDOAH DIVISION OF MINING DISTRICT OF SCHUYLKILL.

YEARS.	Killed.	Injured.	Total.	Total number of employés.	Number of employes to each casualty.	Total number of tons of coal mined.	Number of tons of coal to each fatal casualty.	Number of tons of coal mined to each non-fatal casualty.	Ratio of tons of coal mined to casualties.	Number of tons of coal to each employé.
1880,	39	92	131	11,471	$87\frac{48}{100}$	3,753,785.14	96,250.18	40,802.00	28,654.17	327.04
1881,	34	149	183	10,911	$59\frac{114}{183}$	4,504,624.06	132,488.01	30,332.02	24,615.02	412.01
1882,	40	167	207	12,361	$59\frac{148}{207}$	4,661,024.12	116,525.02	27,910.01	22,517.00	377.09
1883,	47	134	181	13,399	74	4,854,724.19	103,292.00	36,229.00	26,821.10	366.10
	160	542	702	48,142	. . .	17,774,159.11	448,556.01	135,173.03	102,608.07	1,483.04
Average,	40	$135\frac{1}{2}$	178	$12,035\frac{1}{2}$	$70\frac{1}{4}$	4,443,564 18	112,139.00	33,793.05	25,652.01	362 06

NUMBER OF EMPLOYEES, COAL MINED, DAYS WORKED, &c., FOR THE YEAR ENDING DECEMBER 31, 1883.

Collieries.	Operators.	Number of tons of coal shipped.	Number of Employees.			Number of days worked by breaker.	Number of kegs of powder used.	Number of mules and horses.	Persons Killed.		Persons Injured.		Total casualties.
			Inside.	Outside.	Total.				Inside.	Outside.	Inside.	Outside.	
Girard,	Philadelphia and Reading Coal and Iron Company.	82,664.01	112	170	282	230¾	600	.	1	. .	3	1	5
Hammond,	do. do.	117,467.11	155	148	303	233½	3 625	.	. .		4	1	5
Connor,	do. do.	150,534.01	177	118	295	233¾	4,200	. .	. .	1	2	1	4
Girard Mammoth,	do. do.	78,763.16	100	89	189	233½	3,225	. .	. .		2	.	2
Turkey Run,	do. do.	124,694.08	213	164	377	234	2 800	. .	.	1	10	. .	11
West Shenandoah,	do. do.	111,575.09	195	214	409	238½	3,100	.	. .	.	3	. .	3
Shenandoah City,	do. do.	110,444.02	196	167	363	233	3,029	.	.	.	1	1	2
Plank Ridge,	do. do.	101,934.10	237	145	382	229¼	4,150	.	2	. .	. . .	1	3
Indian Ridge,	do. do.	145,893.16	249	231	480	236	4,125	. .	2		2	2	6
Ellengowan,	do. do.	302,590.00	368	333	701	228½	7,150	. .	4	1	2	1	8
Knickerbocker,	do. do.	129,542,18	190	203	393	238¾	4,650	. .	1	1	4	. .	6
Gilberton,	do. do.	72 441 04	137	116	253	238¾	3,000	. .	1	.		1	2
Boston Run,	do. do.	80,328.03	125	151	276	216¾	1,625	.		.	1	. .	1
Bear Run,	do. do.	74.749.16	125	142	267	233¾	1,760	. .	1	. .	1	1	3
St. Nicholas,	do. do.	49,525.05	100	119	219	222½	1 500	. .	. .	. . .	4	1	5
Tunnel Ridge,	do. do.	91,832.14	140	135	275	233	1,920	. .	. . .	. .	2	. . .	2
Elmwood,	do. do.	64 161.09	115	116	231	212¾	1,200	.	.	.		2	2
Mahanoy City,	do. do.	122,436.03	167	139	306	238¾	2,250	. .		. .	5	1	6
North Mahanoy,	do. do.	56,498.03	77	58	135	235	1,350	.	1	.	2	. . .	3
Schuylkill,	do. do.	97,916,19	160	108	268	131½	3,050	. .		.	2	. . .	2
East Bear Ridge,		86,968 05	67	76	143	264½	. .	. .		.	4	1	5
West Bear Ridge,		72,834.03	78	134	212	282			1	1	1	2	5
Packer, No. 1,	Lehigh Valley Coal Company,	48,503.13	139	149	288	176.6	674	26	. . .	1	. . .	. .	1
Packer, No. 2,	do. do.	111,659.12	197	176	373	211	2,463	26	6		7	. .	13
Packer, No. 3,	do. do.	155,502.05	251	188	439	230.3	2,164	22	4	. . .	2	. .	6
Packer, No. 4,	do. do.	225,406.19	266	196	462	235.5	5,262	25	4	. .	3	.	7
Cambridge,	Cambridge Coal Company,	9,722.10	19	9	28	223½	240	6					
Cuyler,	S. M. Heaton & Co.,	169,020.05	204	150	354	263¼	4,875	41	1	1	1	.	3
Copley,	L. F. Lentz,	42,123.14	129	86	215	188	.		1	. .	.		1
Coal Run,	Suffolk Coal Company,	147,367.11	194	144	338	250¾	188	.	1	. .	4	2	7
Draper,	Draper Coal Company,	109,066.04	204	138	342	250½	2,783	28		. .	7	. . .	7
Glendon, Lehigh,	J. C. Hayden & Co.,	108.012.12	175	100	275	213¾	2,720	26	3	. . .	7	. .	10
Honey Brook, No. 1,	Lehigh and Wilkes-Barre Coal Company,	40,066.10	114	91	205	196	623	13	. . .	. . .	1	. . .	1

NUMBER OF EMPLOYEES, COAL MINED, DAYS WORKED, &c., FOR THE YEAR ENDING DECEMBER 31, 1883—Continued.

COLLIERIES.	Operators.	Number of tons of coal shipped.	NUMBER OF EMPLOYEES. Inside.	Outside.	Total.	Number of days worked by breaker.	Number of kegs of powder used.	Number of mules and horses.	PERSONS KILLED Inside.	Outside.	PERSONS INJURED. Inside.	Outside.	Total casualties.
Honey Brook, No. 4,	Lehigh and Wilkes-Barre Coal Company,	198,094.01	214	143	357	227.6	2,801	33	.	.	3	.	3
Houey Brook, No. 5,	do. do.	133,507.09	173	170	343	216.8	2,025	32	. .	1	2	.	3
Kohinoor, Nos. 1 and 2,	R. Heckscher & Co.,	187,000.00	367	283	650	252	3,000	40	. .	.	9	.	9
Lawrence,	J. S. Lawrence,	89,335.00	127	166	293	240							
Primrose,	Primrose Coal Company,	27,396.00	66	60	126	133	921	11	.	1	1	.	2
Stanton,	Miller, Hoch & Co.,	97,228.01	139	168	307	274½	603	30	. . .	1	1	.	2
Kehley Run,	Thomas Coal Company,	115,311.01	161	135	296	263⅓	3,185	33	1	.	1		2
William Penn,	William Penn Coal Company,	228,500.00	331	269	600	250	5,000	49	1	. .	8	. . .	9
West Lehigh,	Fisher Hazzard,	21,561.12	118	95	213	112½	.	.	1	.	2		3
Webster,	L. S. Baldwin,	11,960.15	23	25	50	125	.	.		. . .	1	. .	1
Oakdale,	E. L. Powell,	10,000.00	18	11	29	232	200	2					
Laurel Ridge,	John A. Dutter,	21,336.04	31	26	57	257⅔							
†Park, No. 1,	Lentz, Lilly & Co.,	25,788.14	.	.	.	73⅔							
Total shipped,		4 579.929.15	7,145	6,254	13,399	*221⅓	98,036	.	37	10	115	19	181
Consumed or sold at collieries,		274 795.04											
Total production,		4,854,724.19											

*Average. †Late Copley.

NAMES OF COLLIERIES in operation and Coal mined in Second or Shenandoah Division of Mining District of Schuylkill, for the years 1880, 1881, 1882, and 1883.

COLLIERIES.	Operators.	Location	1880.	1881.	1882.	1883.
Girard,	Philadelphia and Reading Coal and Iron Company,	Girardville,	81,894.13	69,567.07	104,647.08	82 624.01
Hammond,	do. do.	do.	70,649.19	95,274.09	93,838.13	117,467.11
Connor,	do. do.	do.	107,995.09	137,251.01	138 293.10	150,534.01
Girard Mammoth,	do. do.	Raven Run,	722 14	14,273.08	47.832.14	78,763 16
Turkey Run,	do. do.	Shenandoah,	88.289.10	114,298 16	127,763.12	124.694.08
West Shenandoah,	do. do.	do.	111 042.11	122,264.09	103.776.13	111,575.09
Shenandoah City,	do. do.	do.	52 689.00	84 819.11	116 213 09	110,444.02
Plank Ridge,	do. do.	do.	91,740.13	197 195.09	108 257.16	101 984.10
Indian Ridge,	do. do.	do.	118 338 11	143,562.07	144,602.00	145 898.16
Ellengowan,	do. do.	Lanigans,	187,261.18	240,977.05	244.120.15	302.590.00
Knickerbocker,	do. do.	Yatesville,	100.223.05	113 555.01	92.168 07	129 542.18
Gilberton,	do. do.	Gilberton,	13,229.18	52 988.14	77,090.09	72,441.04
Boston Run,	do. do.	Boston Run,	67,956.03	46.705 17	80.470.10	80,323 03
Bear Run,	do. do.	St. Nicholas,	30.277.16	19,221 10	43 751.07	74 749.16
St. Nicholas,	do. do.	do.	69,931.09	111,031.10	106,400.05	49,525.05
Tunnel Ridge,	do. do.	Mahanoy City,	3 458 17	74,654.15	70,008.02	91.832.14
Elmwood,	do. do.	do.	7,690 06	282.03	20,841.06	64,161.07
Mahanoy City,	do. do.	do.	98 613 17	114,339.13	113,339.16	122,435 06
North Mahanoy,	do. do.	do.	89,752.00	71,190.11	52 719.01	56 498 03
Schuylkill,	do. do.	do.	9.266.06	81,925.02	83,972.11	97,916.19
Furnace,	do. do.	Gilberton,	35,336.07			
East Bear Ridge,	Myers, McCreary & Co.,	Mahanoy Plane,	64 004.19	63,196 17	65 491.06	86,968.05
West Bear Ridge,	do. do.	do.	64 549.03	74,425.09	69,283.18	72,834.03
Packer, No. 1,	Lehigh Valley Coal Company,	West Mahanoy township	71.530.14	81,564 00	61,700.00	48,593.13
Packer, No. 2,	do. do.	do. do.	126,224.15	126,510.19	98.434.02	111.659 12
Packer, No. 3,	do. do.	do. do.	79 661.18	170,078.11	158,595.10	155,502.05
Packer, No. 4,	do. do.	do. do.	178 713 07	200,682.07	218,127.18	225,406.19
Cambridge,	Cambridge Coal Company,	Shenandoah,	5,122 00	9,065.12	10,939.00	9.722 10
Cuyler,	S. M. Heaton & Co.,	Raven Run,	147,152.00	177,954.04	175,949.08	169,020.05
Copiay,	L. F. Lentz,	Mahanoy City,	57,026.14	68 777.12	75,958.00	42,123.14
Coal Run,	Suffolk Coal Company,	St. Nicholas,	93,292.03	127,409.04	136,191.12	147.367.11
Draper,	Draper Coal Company,	Gilberton,	87,982.15	117.132.09	114,631.11	109,066.04
Glendon Lehigh,	J. C. Haydon & Co.,	Mahanoy City,	89,506.09	95,481.00	111,436.00	108 012.12
Honey Brook, No. 1,	Lehigh and Wilkes-Barre Coal Company,	Audenried,	80.778.10	81,116 01	51,381 08	40,006.10
Honey Brook, No. 4,	do. do.	do.	110,712.04	164,940.07	163 580.02	198,094.01
Honey Brook, No. 5,	do. do.	do.	124,153.02	124,302.12	108,419 02	133,507.09
Kohinoor, Nos. 1 and 2,	R. Heckscher & Co.,	Shenandoah,	159 813.14	175,861.00	162.000.00	187,000.00
Lawrence,	J. S. Lawrence,	Gilberton,	95 381.10	112,200.00	95 368.00	83,335.00
Primrose,	Primrose Coal Company,	Mahanoy City,	41,786.06	55,193.02	56,460.00	27,396.00
Stanton,	Miller, Hoch & Co.,	Gilberton,	62,803.10	57,854.05	68,733.00	97,228.01
Staffordshire,	Jones & Oliver,	Mahanoy City,	8,111.19	11,422.01	7,881.08	
Kehley Run,	Thomas Coal Company,	Shenandoah,	80,032.02		79,616.00	115,311.01
William Penn,	William Penn Coal Company,	Mahanoy township,	174,000.00	222,252.09	228,000.00	228,500.00
West Lehigh,	Fisher Hazzard,	Mahanoy City,	40,239.16	46,757.16	47,668.08	21,661.12

NAMES OF COLLIERIES, &c.—Continued.

COLLIERIES.	Operators.	Location.	1880.	1881.	1882.	1883.
Webster,	L. S. Baldwin,	Mahanoy City,	15,167.04	24,119.11	25,381.00	11,960.15
Oak Dale,	E. L. Powell,	Shenandoah,	3,896.00	10,000.00	10,000.00	10,000.00
Mammoth,		Mahanoy City,	156.00			
North Star,	Reynolds & Roberts,	do.	15,413.15	24,000.00	8,465.19	
Laurel Ridge,	John A. Dutter,	Gilberton,	19,583 00	11,016.00	24,104.09	21,336.04
Hill Side,			3,000.00			
Eureka,			6,576.00			
Park, No. 1,	Lentz, Lilly & Co.,	Mahanoy City,				25,788.14
Total shipped to market,			3,543,663.04	4,249,643.08	4,401,894 06	4,579,929 15
Consumed or sold at colliery,			210,122.10	254,980.18	259,130.06	274,795.04
Total production,			3,753,785.14	4,504,624.06	4,661,024.12	4,854,724.19

THIRD OR SHAMOKIN DISTRICT.

Office of Inspector of Mines, Shamokin District,
Ashland, *April, 1884.*

To His Excellency Robert E. Pattison,
Governor of Pennsylvania:

Dear Sir: In compliance with an act of Assembly, entitled "An act providing for the health and safety of persons employed in and about the coal mines," approved March 3, 1870, I herewith have the honor of submitting this, my annual report of the proceedings, accidents—fatal and non-fatal—with tabulated statements of employés, tonnage, etc., for the year 1883:

Total quantity of coal shipped to market, tons,	4,540,917.08
Sold and consumed at collieries, tons,	272,245.04
Total production for year, tons,	4,813,162.12
Total production for year 1882, tons,	4,588,779.04
Increase over that of year 1882, tons,	224,383.08
Number of employés inside,	8,642
Number of employés outside,	5,946
Total number of employés in district,	14,588
Number of kegs of powder used,	93,294
Average number of days worked during year,	208½
Number of fatal casualties,	64
Number of non-fatal casualties,	170

One hundred and ninety-six visits were made to collieries to examine their workings. Attended forty-six inquests. Traveled, in the performance of those duties, by rail, six thousand and thirty-six miles; in the mines, about five hundred and twelve miles; outside, seven hundred and thirty miles.

In addition to tabulated statements of number of employés in and about the mines, number of tons of coal produced, number of kegs of powder

used, and number of days worked during the year, I have reviewed, carefully, the fatal casualties, their nature and causes, and such other information as may be beneficial to those engaged in the mining and production of coal.

Very respectfully,

JAMES RYAN,
Inspector of Coal Mines.

Continental Colliery.

Built a brick arch fifty-five feet long, seven and a half feet radius, resting on a stone wall used as inside slope engine-house. Put in a double-acting Knowles steam-pump, ten-inch plunger, two-foot stroke; steam cylinder twenty-eight inches. Also a pair of hoisting-engines, seventeen-inch cylinders, two-foot stroke, with drum, brake, everything complete.

Sunk an inside slope three hundred and six feet deep on an angle of nineteen degrees, in Mammoth vein, about thirty yards east of bottom of old slope. Put in a line of five-inch steam and eight-inch steam-pump water-column pipe.

Monroe Colliery.

Sinking a new slope on the north dip of Lykens Valley vein. Pumping water out of old Reno colliery preparatory to drive a tunnel to Skidmore vein.

Centralia Colliery.

Put two new coal-jigs in breaker and a speaking-tube about one thousand feet two-and-a-half-inch gas-pipe.

Logan Colliery.

Put in seven hundred feet of four-inch column pipe and covered seven hundred feet two-and-a-half-inch steam-pipe. Built a new engine-house inside for No. 4 slope. Put in place four new boilers.

Hazle Dell Colliery.

Put up a twelve-foot fan to ventilate the workings. Built a new trestling about five hundred feet long, also a new engine-house. Put up a thirty-horse hoisting-engine and drum complete, also about fourteen hundred feet of plane, with railroad track and other improvements, to connect with Centralia Colliery breaker.

Bellmore Colliery.

Put in twelve (12) new boilers. Completed breaker. Erected a new sixteen-foot fan. Extending tunnel north towards the Lykens Valley vein.

Greenback Colliery.

Put up a sixty-horse-power hoisting-engine and new foundation complete.

Morris Ridge Colliery.

Drove a tunnel south a distance of two hundred and twenty yards to Buck Mountain vein.

Mt. Carmel Colliery.

Erected a new boiler-house. Put in place eight new boilers, thirty-four inches in diameter, thirty-six feet long. Sunk a shaft from surface to Mammoth vein, a distance of one hundred and twenty-five feet, for the purpose of pumping water out of mines. Put in thirty-six-inch steam cylinder, eighteen-and-a-quarter-inch plunger, six feet stroke Allison pump. Now sinking an inside slope in Mammoth vein. Put a locomotive on dirt bank.

Short Mountain and Lykens Valley Colliery.

Put up a nine-foot fan. Engine run by hot-air to ventilate the old Bear Valley workings; also, a sixteen-foot fan on White's vein, at Short Mountain side. Made engine-room, pipe-way, &c., in deep slope level between the Short Mountain and Lykens Valley slopes. Drove three hundred and fifty-six and a half yards of rock, cross-cut in old Bear Valley tunnel. Drove forty-nine and two third yards of rock, cross-cut in slope workings. Put in new large elevators in breaker.

Williamstown Colliery.

Cross-cuts driven on No. 2 and No. 4 levels, between the Big Lykens Valley and the White's veins.

Star Colliery.

Sunk a trial slope on the No. 16 vein, about four hundred feet deep. Built a new trestling to breaker.

Preston No. 2.

An air-way and timber-way driven to surface, a distance of about one hundred yards.

Bast Colliery.

A new twelve-foot "Guibal" fan, to ventilate the Buck Mountain vein workings.

Four additional boilers, 34″×30′, and four new, same size; replacing same number of old ones. Pump slope in Mammoth vein sunk a depth of eighty-three yards to January 1, 1884, and still sinking.

Slope in Buck Mountain vein sunk sixteen yards to January 1, 1884, still sinking. Will probably be sunk to present bottom level of Mammoth vein.

Keystone.

The screen-rooms of the breaker have been remodeled, and supplied with the new standard cast-iron slate-picking tables and telegraphs. An inclined car hoist has been constructed at the breaker-tip so that the empty wagons will return by a gravity road to the head of the slope.

Potts Colliery.

The screen rooms of this colliery have been remodeled and fitted up with slate-picking tables, &c., similar to those at Keystone. A new bull-engine 50″ cylinder, 120″ stroke, with new foundation masonry and building has been erected on the site of the old one. A new steam pump 22″ steam cylinder, 10″ water cylinder, with one hundred feet of column and tail pipe, together with six hundred feet of cast-iron steam-pipe attached has been placed in the slope. For the purpose of smothering the fire (about half a mile in extent) in the old east-side workings (which has been burning about twenty-five years), the breaches at the outcrop are being washed full of coal-dirt slush, to do which a forty-inch guage railroad two thousand two hundred and fifty feet long has been constructed of thirty-pound rails, and equipped with a five-ton locomotive and six dirt dumpers. A steam pump 9″×38″, with five thousand three hundred and twenty feet of column pipe, has been erected at the creek to supply the water therefor, and seven hundred and twenty-five feet of cast-iron telegraphs and a set of dirt bins have been erected to aid the slushing.

Merriam Colliery.

A tunnel sixty-six yards long has been driven north from the Mammoth to the Skidmore vein at the counter-level.

Locust Spring Colliery.

A new creek-channel one thousand three hundred feet long by ten feet wide has been dug outside to make more room for dirt. Four new standard boilers with "Wooten" patent blowers attached have been erected in lieu of those damaged by the explosion. The other eight boilers have been fitted with "Wooten" blowers also. A new frame boiler house 62′×42′ has been built. A new dirt bin 28′ 6″×11′ 9″ has also been erected to be used in shipping coal dirt. Three new pine tanks, capacity four thousand gallons each, have also been erected to be used for neutralizing mine water for boilers.

Locust Gap Colliery.

The Philadelphia and Reading Coal and Iron Company acquired this colliery February 1, 1883, and proceeded at once to put it in proper condition. The breaker has been repaired throughout and the screen rooms fitted up similar to those at Keystone colliery. A new "Allison & Bannan" steam pump 8″×36″, with two hundred and thirty-six feet of column and tail pipe, has been erected at the creek to supply water for the jigs washing the coal in breaker. A new pole pump 20″×84″ has taken the place of an old one of a similar size. Two new S. B. Whiting double-acting steam pumps, each 9″×38″, have also been added. Eight new boilers with patent blowers attached (replacing worn-out ones), with two new iron stacks and a new boiler house 57′×54′ with sheet-iron roof have been erected.

Four new frame tanks, four thousand gallons' capacity each, have been

constructed, and one thousand six hundred feet of 3″ Hautboy pipe laid and covered. Three new neutralizing tanks, same size, have also been erected. Aside from the ordinary repairing, all the trestles have been largely renewed, the upper part of the pump slope entirely retimbered, and the mouth thereof, with the approaches thereto, properly protected by retaining walls.

A new office building has also been erected.

A tunnel one hundred and three yards long has been driven north from the Mammoth to the Skidmore vein.

Mt. Carmel Shaft Colliery.

The screen-rooms of the breaker have been remodeled and refitted similar to those at Keystone colliery. A " Clark's patent jig," with all necessary machinery to operate it, has been added to those already there.

Four new standard boilers, with the " Wooten " blowers attached, with a new iron stack, and a new boiler-house, 17′×54½′, sheet-iron roofed, have been erected. A new four-thousand-gallon water-tank has been constructed.

Buck Ridge Colliery.

On the 29th of August the Philadelphia and Reading Coal and Iron Company took possession of this colliery, which was in a dilapidated condition. Steps were at once taken to put it in working order, which will take until July next.

Peerless Colliery.

This colliery came into the possession of the Philadelphia and Reading Coal and Iron Company on July 6, 1883. Extensive improvements are in contemplation at this colliery.

Burnside Colliery.

Have erected four new standard boilers with patent blowers, new sheet-iron roofed boiler-house, 51′×17′. A new fifteen-foot " Guibal " force fan, with engine, &c., complete, has been erected near the mouth of the " Bittenbender " water-level tunnel. Four two-thousand-gallon neutralizing tanks have also been erected, for the purpose of extinguishing the fire in the old rock bank outcrop of the north dip slope workings. Two Allison & Bannan six-inch steam pumps, with four hundred and fifty feet six-inch column pipe, have been erected at the creek to supply the water thereby.

Bear Valley Colliery.

The screen-rooms of the breaker have been remodeled and refitted. Two " Clark's " patent jigs, with all the necessary gearing, having been added to those already in use there. A new rock chute, one hundred and three feet long, four and a half feet wide, has been attached to the breaker Four new standard boilers, with blowers, with new sheet-iron stack, and new sheet-iron-roofed boiler-house have been erected.

North Franklin No. 1 Colliery.

Half of the breaker has been entirely remodeled, and the screen-room fitted up with slate-picking tables, &c. A new self-acting plane, four hundred and twenty-five feet long, with a seven-foot drum, has been constructed, and a new railroad, four thousand seven hundred feet long, including branches, turn-outs, and plane from the several colliery openings to the breaker-tip, has been constructed. A new double-span wooden bridge, seventy feet long and ten feet wide, has been erected across the railroad and creek. A new four-thousand-gallon water-tank, and three thousand two hundred feet of water-pipe laid and covered. Three new counter drifts have been opened.

North Franklin No. 2 Colliery.

There has been erected a new slope hoisting-engine, 16″×34″, twelve-foot fly-wheel, seven-foot drum, with one thousand two hundred and seventy-five feet of steam pipe attached. Also, a new hoisting engine-house. A twelve-foot "Guibal" force fan, with engine, &c., complete, has been erected. Four new standard boilers, with blowers, a new brick stack, and a new boiler-house, with sheet-iron roof, have been erected.

In the north dip slope a tunnel one hundred and fifty feet long has been driven north across the saddle of No. 8 vein, east side. An air-hole has been driven four hundred and eighty-four feet to daylight. A water-course gangway has been driven two hundred yards, draining the slope level without pumping. A creek channel eight feet wide in the bottom, and one thousand two hundred feet long, has been made to obtain more dirt room.

Besides these improvements the general repairs at all the collieries have been fully kept up.

Report of the Lykens Valley Coal Company's Short Mountain and Lykens Valley Colliery Mine Fire.

The colliery is located in Wiconisco township, Dauphin county.

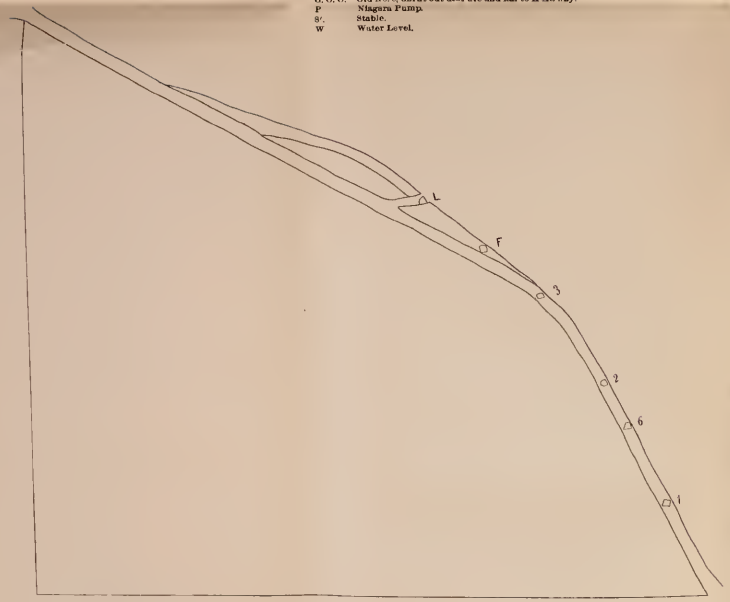
This fire was discovered on Sunday afternoon, November 19, 1882, in No. 1 or east fan-room of the Short Mountain slope leading from airway marked "H" in diagram. There are two main openings, viz: The Short Mountain and Lykens Valley slopes. They are one thousand five hundred feet in length or depth, the upper or first nine hundred feet dipping on an angle of twenty-nine degrees, the lower or remaining six hundred feet incline at an angle of about sixty-nine degrees, making altogether a vertical depth of about nine hundred and thirty-five feet, as will be seen on diagram. There are three pump slopes, three fans, boilers, and stable connected with the workings, nearly all of which were in close proximity to the point where the fire originated. The first alarm of the fire was given about 4.45, P. M. Instantly men were seen running to the scene of the disaster from all directions. The officials were soon on the ground, and at once endeavored to prevent or stay the rapid progress of the fire; but, before any assistance was at hand, the fire had spread or reached the No. 2 fan (F″ in diagram.) These fans (F′, F″, F‴.)

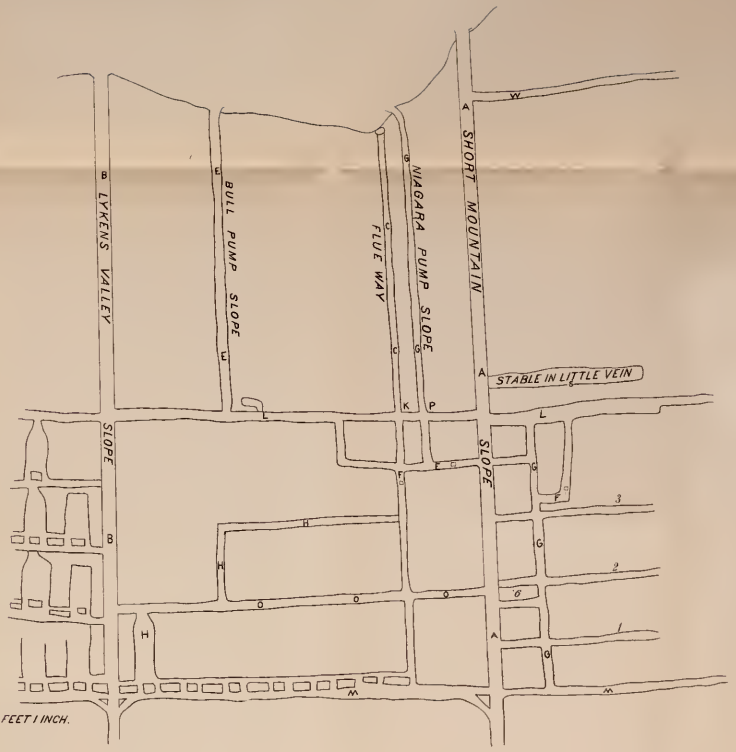
Notes of Points on Map.

A. A. A Sht. Mt. Slope.
B. B. Lykens Valley Slope
C. C. Flue way.
D. D. Niagara Pump Slope.
E. E. Bull Pump Slope.
F. No. 1. Fan. *Where fire started.*
F''. No. 2 Fan.
F'''. No. 3 Fan.
G. G. G. New Pump Slope.
H. H. H. Airway.
1. No. 1 Counter
2. No. 2 Counter.
3. No. 3 Counter.
6. New No. 6.
K. Boilers.
L. L. Old Level.
M. M. Bottom Gangway.
O, O, O. Old No. 6, burnt out drst fire and fall to H Airway.
P Niagara Pump.
St. Stable.
W Water Level.

Notes of Location of Gangway on Slope Profile.

L. Old Level.
F. Fanway.
3. No. 3 Counter.
2. No. 2 Counter.
6 New No. 6.
1. No. 1 Counter.





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were passing a volume of about one hundred thousand cubic feet of air per minute. It was important that their destruction should be prevented if at all possible. The inside foreman (James G. Baleman) and his assistants cut a water ditch at the top of the upcast leading from No. 2 fan, which permitted water to run into and down No. 2 fanway, checking the fire for a short time, after which a two-and-a-half-inch hose was connected to the Niagara pump (P) to play on the fire, which had reached the old level (L) at the time. In a short time after the hose had been attached the pump gave out. The fire was rapidly burning away the timbers around it. A line of two-and-a-half-inch hose was then run from the surface down Short Mountain slope, hoping that by this means the progress of the fire might be arrested, and, at least, confined to one locality. Scarcely, however, had the men reached the vicinity of the fire when the air-current was reversed, which compelled them to make their escape from the gases which were being produced by the fire. There were, in all, one hundred and seventeen mules in the mine at the time. Those in the east counter were considered safe; those in the lower levels, east and west counters—ninety-two in number—were hoisted out of the mine, with the exception of one, which was burned. The hoisting of the mules was commenced at about six o'clock, P. M., which occasioned some difficulty, as each had to be thrown and strapped inside in the car before being hoisted. This occupied about twenty (20) hours. The ropes on the drum were taken, and a battery built across the slope, and part of the slope-house cut away. In the meantime efforts were being made to reach the fire from the east or Lykens Valley slope, which was found to be impossible until the Short Mountain slope became an upcast, taking away the smoke east of the fire, after which hose was connected with the bull pump column-pipe. No. 1 or east fan, fortunately, was a forcing-fan, which prevented the fire going eastward. The men, therefore, were able to meet the fire at the air-current intake at about eleven o'clock, P. M.

The fire, however, had reached the surface by ten o'clock—the flames were seen shooting up out of the Niagara pump-slope and flue-way for a distance of seventy-five or one hundred feet from the mouth of the openings. The only remedy left was to fight the fire from the east side. Accordingly, five lines of two-and-one-half-inch hose were run to different points on the fire. The steam connections to the lower pumps had given out, so that the pumping at these points was all over for the time and the mine rapidly commenced to fill with water. On the 20th the fire was fought westward to the boilers, and also down the incline as far as the intake to the No. 1 fan. This latter proved to be very hard work as the openings were large. Preparations were being made on the top of the Short Mountain slope to meet the fire when it would make its appearance there. A column of water was being run from the old Bear Valley tunnel down to top of slope, saturating the timbers. Three streams were also conducted through a two-and-one-half-inch hose on the buildings at the head of the

slope to prevent the destruction of the slope and engine-house. As was expected, the fire made its appearance about eight o'clock, P. M., and presented a sight to behold. The men worked as though they worked for life. The desperate fight waged between fire and water at this stage was almost beyond description. At intervals the flames would gush up out of slope mouth for a distance of about fifty feet with such force, defying the force of water, throwing it all over the building until the roof of which was a sheet of ice. About eleven o'clock, P. M., the timbers at the top of the slope gave way, permitting the opening to be closed up, for a time relieving all anxiety concerning this point. On the morning of the 21st fire was discovered in the air-course about eighty yards below No. 1 fan. The vein at this point dips at an angle of seventy degrees. A three-inch column of gas-pipe was laid from the Bull pump down Lykens Valley slope to No. 6 gangway, along said gangway, and up the air-course to the location of the fire. The laying of this pipe, which was one thousand one hundred feet in length, was commenced at five o'clock, P. M., on 21st, and was finished or laid at three o'clock, A. M., on the 22d. The same day the fire also was forced down No. 1 fanway, and an overcast put across the fanway to carry off the heat and gas generated by the fire below. The fire was then followed westward through No. 2 fanway and over to the pump-slope leading to deep slope level. By three o'clock, P. M., on the 22d, the western end of the fire was reached. The men had now conquered a very important point, although they had to pass a large body of fire below and keep the brattice behind them saturated with water to prevent it from burning. Never did men work more faithfully than they to gain this latter point. They were aware of its importance and gained it in the nick of time. Had they been delayed an hour longer very probably the fire would have reached the main pump-slope, where the angle of dip varies from forty degrees to seventy degrees, destroyed the slope and everything connected therewith, and possibly get into the old workings, where it would have been almost impossible to follow it, in which case the colliery would have to be flooded with water, thereby preventing the working of the colliery for some time thereafter. On finding the No. 3 fan safe it was concluded that the fire was virtually under control. As the points east, west, and below the fire had been secured, the remainder of the work consisted in fighting it upwards toward the surface.

Rapid progress had been made on the 23d. The men succeeded in passing up the Niagara pump-slope. They discovered fire there, and in five cross-headings up the slope. Steam-pipes were laid on the 24th down the Niagara pump slope to make connection with the boilers at the old level preparatory to the pumping of the water out of the slopes. On the 25th a new pump at the bottom of the Lykens Valley slope was located to pump the water part way up the slope, it being hoisted the remaining distance by the boilers, (water-boilers.) One of the pumps was started about seven o'clock, P. M., on the 26th, after being under water a depth of about twenty

feet vertically. The new pump was started on the 27th, also the hoisting of water with water-tight cars. From that time forward, the fire was being rapidly brought under control. On December 7, it was practically extinguished. Both officials and workmen, however, in all this time endured great hardships, and very frequently found it necessary to exercise both their mental and physical energies in an atmosphere whose temperature ranged as high as one hundred and forty degrees.

The top rock in the Short Mountain slope had broken down in some places to a height of fifty feet.

To extinguish a fire of such magnitude in eighteen days, the constant dangers attending such, and without loss of life or injury to any person, required the best of judgment and able management of skillful officials.

The Short Mountain slope was re-opened and repaired a distance of about seven hundred feet, constituting the part that was burned and broken down. Hoisting coal commenced on it April 17, 1883. How the fire originated is not positively known, but is supposed to have occurred from cotton waste in a nail-keg saturated with oil by the engineer in cleaning his engine.

Among the corps of officials and workmen deserving credit were E. C. Hanna, superintendent; James G. Bateman, inside foreman; Richard Horley and William Thomas, assistant foremen; John Chester, master machinest; Joseph Daniel, Robert Beadle, William Coles, John Temple, William Horley, John Cook, Charles Evans, John C. Kinley, Otto Long, Dennis McAuliff, William Scratchard.

Fatal Accidents.

No. 1.—Theophilus Muscovitch and William Grosnoskie, miners; ages respectively thirty-eight and thirty-one years. Muscovitch was killed instantly by a fall of coal, on February 7, 1883, in Logan colliery. Grosnoskie received such injuries as to cause his death on the 13th of same month. By the evidence elicited at inquest, the deceased, Theophilus Muscovitch, and two other men, namely, William Grosnoskie and Joseph Zavosdoskie, were working together in breast No. 15, No. 3 east gangway. About one o'clock, P. M., they were down in the gangway. It became known to other men that the top coal in their (deceased) breast was cracking and working. They were told not to go up into breast. Unmindful of the advice given, they went on up the breast. They were but a short time there when the top coal fell, killing Muscovitch instantly, and inflicting such injuries to Grosnoskie as to cause his death in six days after.

Muscovitch was a single man. Grosnoskie left a wife and one child.

No. 2.—Joseph Paul, laborer, age twenty-eight years, fatally injured in Gordon colliery by a rush of coal, dirt, and rock, on February 24, 1883; died on the 27th.

Deceased was working with a miner named Elias Paul, robbing gangway and breast pillars. At the time of the accident, they were in the act of loading a mine car out of a chute, deceased had hold of the brake-stick

across chute for the purpose of regulating the running of the coal into car. His "butty" (Elias Paul) had hold of a bar, barring a loose lump of rock that was in chute above the brake-stick, when, without giving any notice, a large mass of dirt, coal, and rock rushed out of gangway, carrying with it timber, lagging, etc., partly burying deceased in mine car, which was standing under chute. He died in three days after, leaving a wife and one child.

No. 3.—James McLaughlin, miner, age forty-four years, killed on March 10, 1883, by a fall of coal in Black Diamond colliery.

Deceased, at time of accident, was working in a breast with another miner named Peter Ryan. They went in to work about seven and a half o'clock in the morning. After going in they both sat awhile in the lower cross-heading, after which Ryan went down to gangway to get some coal loaded out of his chute which was blocked. Deceased went up his manway to face of breast, drilled a hole, tamped and fired it. Then he went down in gangway. By this time Ryan had his chute drawn empty, or near it. They both took some plank up Ryan's manway. After they got up to face of breast deceased threw one plank across face of breast towards his side and went over across to where he had fired the blast. According to the evidence of Ryan, deceased was not over at his side of breast more than five minutes when the top coal fell on him, killing him instantly. He left a wife and one child.

No. 4.—Frank Eckert, miner, age fifty-two years, fatally injured by a fall of coal in Logan colliery, on February 26, 1883. Died March 22, 1883. Left a wife and eight children.

Deceased, at time of accident, was working with his son Albert in East No. 3 gangway, lower lift. After going in to work in the morning of accident, which was Monday, they tamped and fired two holes which had been drilled the Saturday previous, after which he (deceased) went to dress or bar down the loose coal. While doing so a piece of coal about eighteen inches every way, or over three and a half cubic feet, which was slipped, fell on him and inflicted such injuries as to cause his death on March 22.

No. 5.—John Wanyo, miner, age twenty two years, was killed by a fall of top slate in Luke Fidler colliery, on April 14, 1883. He was a single man.

Deceased was working in a breast with another man by the name of John Borey. By the evidence produced at inquest it appeared after going in to work on the morning of accident they commenced to load cars, (the chute being full of coal,) they loaded three cars, then drilled a hole under the top coal and fired it, after which they loaded the fourth car, then filled the chute with coal again, and were making preparations to go home. Deceased asked a boy that was pushing coal down chute for a pick; after getting it he commenced to pick out some loose coal from where the blast was fired. He had not been working there many minutes when a large mass of overhanging slate fell on him almost covering him, and killing him instantly.

No. 6.—Martin Flemming, miner, age twenty-two years, killed by a fall of top-rock in Pennsylvania colliery, on May 5, 1883. He was a single man.

Deceased, at time of accident, with two other men, named John Carmichael and Thomas Ramage, were employed barring down and timbering bad roof in a new inside slope. Deceased and Ramage were in the act of barring down a dangerous overhanging stone according to the evidence of Ramage, when the piece which they were barring fell, a piece of stone, which was not safe, fell on deceased, receiving such injuries as to cause his death in two and a half hours after accident.

No. 7.—Patrick McAndrew, miner, age forty-six years, killed by a fall of coal in Preston No. 2 colliery, June 12, 1883.

He left a wife and seven children. At time of accident deceased and another miner named Patrick Coyle were employed skipping pillars in the Skidmore vein. They went in to work about seven (7) o'clock in the morning. From that time up to about eleven (11) o'clock, A. M., they were employed timbering their place. When they finished timbering, deceased asked Coyle for a drill. While he (McAndrew) was dressing off some loose pieces preparatory to commencing to drill a hole, the coal commenced to fall and knocked a manway prop down in the head, which caught deceased's head between it and rib or side of pilllar, killing him instantly.

No. 8.—Andrew Thomas, miner, age twenty-seven years, killed by a fall of slate in Excelsior colliery, July 2, 1883. He left a wife and two children.

Deceased and two other men, named Frank Muskuskie and Andrew Waisilas, were employed robbing out a plane gangway. After going in to work on morning of accident, Muskuskie and Waisilas loaded a car. While they were loading it Thomas drilled a hole. After the car was loaded he fired it. Shortly after they went back to work Muskuskie and Waisilas commenced to shovel the coal out from face of workings preparatory to loading another car. While they were shoveling the loose coal deceased was barring down with a drill the loose coal after the blast. He had not been barring more than two minutes when, without giving any notice, a piece of roof twelve feet long, six and a half feet wide, and about ten inches thick fell on deceased, killing him instantly.

This is one of the many accidents which could have been avoided had that care and diligence been taken that should have been in sounding the roof after firing the shot or blast before commencing to bar down the loose coal; also in neglecting to keep the roof sufficiently propped and timbered to prevent the falling of the roof. In my examination of the place after accident, I found the roof to be of a very dangerous character, without any props under it for a distance of eight or nine feet from face of coal or breast.

No. 9.—Alfred Delvol, miner, age twenty-eight years, killed by a fall of coal in Cameron colliery on July 6, 1883. He left a wife and two children.

At time of accident Delvol and another miner, named Nicholas DeHout-

ant, were employed in breast No. 40, east No. 8 vein, No. 9 slope-level. After going in to work on morning of accident, Delvol commenced barring off some loose coal across face of breast, while DeHoutant was drilling a hole on outside rib. After he had the hole drilled he went over across the breast to where Delvol was barring. Shortly after the fall took place which instantly killed deceased.

No. 10.—Peter Colihan, miner, age thirty-nine years, fatally injured in Continental colliery by a fall of coal on July 28, 1883, from which he died in about fifteen hours after receiving the injury, leaving a wife and four children. According to the evidence adduced at inquest, the deceased with three other miners, named respectively James Quigley, James Maley, and Richard Benson, had a contract of robbing out the east counter-gangway in the Mammoth vein. They were to keep the gangway safely timbered, the company to furnish the timber. The deceased at time of accident was standing a set of double timber on the gangway, at a point known as the pillar between breasts 5 and 6. He had the timber standing, and was in the act of putting an old collar to serve as a pole from the timber which he was after standing to an old set inside of it, when, without giving any previous warning, the fall took place, inflicting on him such bodily injuries as to cause his death in about fifteen hours after.

No. 11.—George Sopka, laborer, age twenty-four years. Fatally injured by a fall of top rock in Pennsylvania colliery on July 27, 1883; died on the 30th of same month. Single man.

A miner by the name of William Findlay was working, driving a turnout in west counter-gangway of inside slope—deceased was working with him as laborer. Between the hours of ten and eleven o'clock, A. M., deceased was shoveling on low side, loading a mine car. Without giving any previous notice whatever the piece of top rock (a bowlder) fell. After falling partly on the edge it fell over against deceased, catching him against the car which he was loading, inflicting injuries of such a nature as to cause his death in three days after.

No. 12.—Elias Haas, miner, age twenty-nine years, fatally injured by a fall of top slate in Peerless colliery on August 17, 1883, died in about two hours after accident, leaving a wife and five (5) children.

Deceased at time of accident was employed on one of three shifts driving the west gangway. He and his laborer, Henry Dallas Metz, after going in to work on the three o'clock shift loaded a car, after which deceased drilled a hole. After the hole was drilled he sounded the top, which he decided was safe, each of them took a drill to bar it down. After their efforts proved fruitless, they tamped and fired the hole which Haas had drilled. After firing it he went in to dress off the loose coal with a pick. While doing so the top slate, without giving any notice, fell, striking him on the back, sustaining injuries from which he died in a short time after.

Had deceased the presence of mind to sound the top after firing the

blast, or try to bar it down, this accident very probably could have been avoided. There is no doubt but the jar or concussion of the blast loosened it considerably more than it was when they tried to bar it down previous to firing the shot or blast.

No. 13.—Sampson Cook, miner, age forty-six years, killed by a fall of top slate in Cameron colliery August 20, 1883. He left a wife and six children.

The following is the evidence of William Muensch, "butty" or partner of deceased: "We went in to work about eight o'clock in the morning. After going up to face of breast I set a prop, and deceased drilled a hole. While he was making powder I drilled a hole. He made powder for both. We then tamped and fired them. After the smoke had cleared away, we both went up and dressed off the loose coal after-shots, after which I went down the breast to drive a cross-heading through the inside pillar of our breast. While I was drilling and tamping a hole in the heading he drilled two holes in the breast. I went up and helped him to tamp both holes. After they were tamped I went down to the cross-heading. He lit the two holes at face of breast. I lit the one in the cross-heading. Both of us went out through the cross-heading to breast next outside until the shots or blasts went off, after which went down to battery near gangway to eat our dinner. After we had dinner, we took up timber, then each of us went to our respective places—he to the breast and I to the heading. After the loose coal after-shots were dressed off, we drilled a hole each, and fired them. After the smoke had cleared we dressed off the loose coal. Before I had the loose coal dressed off in heading and shoveled out into breast he had another hole drilled at face of breast. About the time he had commenced to tamp his hole I started to drill another hole in the heading. After he had fired the last hole which he drilled in breast, he commenced to make preparations to prop the top at face of breast. While he was doing so, I tamped and lit the hole which I had drilled in the heading. After lighting the match I went up towards face of breast, the concussion of the blast having put out my light I went up to him to get a light. While, or after, getting the light I remarked to him, saying: 'Sampson, you will have to put props under this, (meaning the top,) it is drawn,' to which he replied: 'I will.' I went down to heading. Was not there more than ten minutes when I heard the fall. I ran out of heading, looked up breast towards face, could see no light. I called him twice, got no answer. In about a second or two I heard him groan. I ran out to next breast for men to come get him out. When we had him extricated from under the fall he was dead."

In my examination of the place after the accident, I found the roof to be of a very dangerous character, being slippy and drawn. It requires the best of care and attention on the part of the workmen to keep themselves secure, by timely propping and timbering such places.

No. 14.—William James, miner, age fifty years, killed by a fall of top slate in Williamstown colliery August 21, 1883. He left a wife and four children.

Deceased, with his two sons, William and Alfred, at time of accident, was driving the tunnel level east counter gangway in the White's vein. After going in to work, at three o'clock in the afternoon, (the gangway being on a double shift,) deceased and his son William each drilled a hole in the coal. After the holes were drilled they loaded a car of coal. After the car was loaded they tamped and fired both holes, then loaded another car of coal. After it was loaded they drilled a hole in the top slate to blast it down. After the shot or blast, deceased commenced to bar and dress off all loose slate, while William and Alfred were loading it into a car. After he had, as he thought, all dangerous pieces barred down, he commenced to drill a hole in the coal on low side of gangway. He (according to the evidence) had not been more than five minutes drilling the hole when the piece of top slate fell, covering him all but his head and arms, killing him instantly.

No. 15.—Emanuel Morgan, laborer, age twenty-four years, fatally injured by a fall of top slate in West Brookside colliery, on August 20, 1883. Died on the twenty-second.

On day and time of accident deceased was working in a breast as laborer with a miner named Christian Shomper. While they were tamping a hole to fire a shot or blast a piece of top slate, which was hanging over inside pillar west, gave a crack or bump. In running back down from face of breast, deceased, in passing under, a piece of the slate it fell on him inflicting such injuries as to cause his death in two days after accident. He was a single man.

No. 16.—Dominic Ambrosavage, miner, age twenty-three years, fatally injured by a fall of top rock in Enterprise colliery, on August 27, 1883. Died in two days after. He was a single man.

On day of accident deceased was working with another miner named Frank Publicoskie, robbing pillars in No. 8 vein, west counter gangway. By the evidence it appears there was a heavy fall of top rock the Saturday previous convenient to where they were working; on the Monday morning following (day of accident) the top rock was still cracking. Deceased commenced to sink a prop hole to stand a prop under a dangerous piece of top rock near face where they were working. While in the act of sinking the hole, a piece of top, about four feet long, two feet wide, and ten inches thick, fell on him, inflicting bodily injuries of such a nature as to cause his death in two days after. This is another of the many accidents which may be attributed to carelessness, recklessness, or incompetency. After those men went in to work, and ascertained the dangerous character of the place, caused by the unsettled condition of the top, if they had gone out until it fell or settled, this accident might have been avoided.

No. 17.—William Muldowney, miner, age forty-two years, killed by a fall of top coal in Big Mine Run colliery, on August 30, 1883. Left a wife and three children.

According to the evidence of John Muensch, deceased and his partner, (they were robbing pillars,) after they went into work, about half past seven

o'clock on the morning of accident, Muensch drilled a hole and fired it, while deceased put coal into chute. They both continued putting coal into chute until about three o'clock, P. M. Deceased commenced to drill a hole in top coal to fire a shot. He had not been drilling more than a couple of minutes when a piece of top coal, about a ton in weight, fell, striking him on the head and knocking him down—receiving injuries from which he died in about two hours after accident.

No. 18.—Thomas Cook, miner, age fifty-one years, fatally injured in Short Mountain and Lykens Valley, on September 5, by fall of slate; died on the 13th. He was a single man.

Deceased, at time of accident, was working in breast No. 2, White's vein, drift No. 2, when the fall occurred, receiving injuries from which he died in eight days after accident.

No. 19.—John O'Neil, laborer, age twenty years, killed by a fall of coal in Merriam colliery on September 26th; single man. Deceased was working on night-shift, and, at time of accident, was shoveling coal at bottom of hole or timberway from flat down to east counter gangway. About seven and a half o'clock, P. M., Edward Helwig (driver), after helping Charles Rubright to dump a loaded car into counter chute, was getting up on his (Helwig's) mule's back. Being near where deceased was working, he looked over and saw deceased's lamp-light. He (Helwig) went over and found him under a large lump of coal. There was no sign of life in deceased when found.

No. 20.—Elmer W. Wagner, laborer, age nineteen years, fatally injured by a fall of coal and slate in West Brookside colliery on October 9th. Died shortly after receiving injuries. He was a single man.

By the evidence of William Breslin, deceased was working with him as laborer. At time of accident they were working on night-shift, driving a slant gangway off the lower west gangway in No. 3 slope. About eleven o'clock, P. M., they were loading the fifth car; Breslin was at the front and deceased was at high side of car. A piece of coal and slate on high-side rib, without giving any previous notice, fell on deceased. The injuries which he received caused his death in nineteen (19) hours after accident.

No. 21.—Michael Viglomdolskie, miner, age forty-six years, killed by a fall of top-coal in Henry Clay Shaft colliery, October 23d. He left a wife and six (6) children.

On day of accident deceased was working alone (his butty not being out to work) in a breast in No. 9 vein, east plane, west counter gangway. According to the evidence of the men working in the next breast, about ten o'clock, A. M., they heard a fall in deceased's breast. They ran in and found him under a large lump of coal, from under which they, with others, extricated him. He lived about ten minutes after being gotten out from under the fall.

No. 22.—William Parnell, miner, age thirty-two years, killed by a fall of top-rock in Williamstown colliery, November 1st. He left a wife and nine

(9) children. At the time of accident the deceased and a man named William James were robbing pillars in No. 2 slope, lower east gangway. A large piece of top-rock over where deceased was working, without giving notice, fell, killing him instantly.

No. 23.—Kassimer Hentz, miner, age thirty-seven years, killed by a fall of top-slate in Short Mountain and Lykens Valley colliery, on November 7th. He left a wife. Deceased, on day of accident, was working alone (his butty not being out to work that day) in a breast in White's vein, old level. When found, about seven and a half, P. M., he was lying on his left side dead. There was a large piece of slate laying on him from his hips down to his knees.

No. 24.—James Neaven, miner, age twenty-one years, killed by a fall of top rock in Locust Spring colliery on November 24. He was a single man.

Neaven was at the time of the accident working with a man named John Gallagher, in breast No. 24, west counter, No. 8 vein. Between nine and ten o'clock, A. M., deceased had a rake in his hand going to rake coal into chute, when a piece of top rock, without giving any previous notice, fell on him, killing him instantly.

No. 25.—Rudolph Keller, miner, age fifty-six years, fatally injured by a fall of coal in Monitor colliery on November 16, died on the 24th leaving a wife and four children.

At time of accident Keller and another miner, John Schreppel, were working togther in breast No. 5, Gin slope tunnel, east gangway. Deceased was dressing off some loose coal when a large lump about four hundred pounds' weight fell on him from the bench over where he was dressing from inflicting injuries which caused his death in eight days after accident.

No. 26.—Thomas McCoy, miner, age fifty years, fatally injured by a fall of top slate and rock in Big Mine Run colliery on December 18th, died same evening leaving a wife and four children. Deceased and a man by the name of Thomas McGrath were skipping pillars. At time of accident they were putting coal into chute, when a piece of top slate and rock, without giving any notice, fell on deceased. The injuries he received caused his death shortly after accident.

Mine Cars and Machinery.

No. 1.—John Smith, breaker engineer, age forty-nine, killed by being caught in cogs of counter screen line shaft wheel under breaker of Centralia colliery January 31, 1883. He left a wife and eight children.

According to evidence produced at inquest deceased after oiling machinery went to examine the dirt hopper. When first discovered by William Slattery, counter screen-man, his clothes were caught in cogs, his body revolving around shaft striking and lifting up the boards near by where Slattery was employed at counter screen. The engine was stopped. Deceased, when found, was dead, his clothes all torn.

No. 2,—John Donahoe, driver, age fifteen years, killed in Luke Fidler colliery by his being crushed between loaded mine cars on February 16, 1883. The deceased and a young man by the name of Thomas Higgins were running a trip of eight cars down a plane gangway. The third front car jumped off the track which stopped the running of the cars. They pushed the front car back, uncoupled it from the second, and run it down a short distance. They came back and did the same with the second, so as to enable them to lift the third car on the road. In running the second car down to the first deceased caught hold of the coupling chain to couple them when they bumped. Deceased, in coupling, reached in too far, thereby getting his head crushed between the cars, sustaining injuries from which he died shortly after.

No. 3.—John Rowe, runner, age twenty years, fatally injured in Mount Carmel shaft colliery, on February 27, 1883, by being crushed between mine car and side of gangway; died same night. He was a single man.

On morning of accident, deceased, with two others named Horan Long and Henry Hole, went to run a trip of four loaded cars down west counter No. 1 gangway. Deceased had three cars run out of breasts on main gangway, (the cars are hauled into breasts, the vein being light pitching,) and was waiting for Long and Hole to run the gangway car (which they had gone in for) down to the other three. As it was being run down, when near deceased and the other cars, the front wheels jumped the track, throwing the hind end around, catching him against side of gangway, crushing and injuring him in such a manner as to cause his death the same night.

No. 4.—Thomas Ruddy, outside driver, age nineteen years, fatally injured at Centralia colliery, on March 15, 1883, by being crushed between top of dirt-dumper and slope plane stringer; died same evening. Single man.

It appears the deceased and another driver named Patrick Quinn were, with a mule, taking a dumper of pea coal over to boilers. Both were standing on front bumpers of dirt-dumper. Deceased had his back turned towards trestling, and, when passing under it, was caught between it and top of dumper. He received such injuries as to cause his death the same day.

No. 5.—Arthur Long, door-tender, age fourteen years, fatally injured in Mount Carmel shaft colliery, on April 12, by being struck and thrown against low-side gangway rib; died in about twenty-four hours after accident occurred.

Albert Jefferson, George Jeffreys, and Michael Dooley, after going down to work, about seven o'clock in the morning, went in main east gangway back switch to run out the loaded cars that had been loaded on the night shift previous. In running them down towards door, they could not see the boy's light there. They concluded that his light was out, which very often was the case with door-tenders. The door was shut, and, the cars running through it, struck the boy. When found, he was lying between low-side rail and gangway rib. The runners picked him up, and blood be-

gan to run out of his mouth and nose. It was then evident that he had received fatal injuries, from which he died shortly after.

No. 6.—Louis Krebs, miner, age forty-two years, killed in West Brookside colliery, on April 26, by being run over by loaded mine car. He left a wife and five children.

Deceased and two laborers named Frederick Dutter and James Adams were working in breast No. 29, No. 3 counter of No. 1 slope. They had two cars loaded at face of breast. While deceased and Dutter were running them down the breast towards main or No. 3 counter gangway, deceased, in running alongside, fell in front and under first car, which dragged him about fifteen yards under it, inflicting injuries from which he died shortly after being taken out from under car.

No. 7.—Stanny Kolinkavich, laborer, age twenty-six years, fatally injured at Enterprise colliery, on May 5, 1883, by being run over by loaded mine car on trestling outside at breaker; died on the 9th. He left a wife and one child.

At about ten minutes before twelve o'clock, noon, deceased, with three other men, were, after tipping or dumping four of a trip of six cars in dump chute of breaker. In running in the other cars to be dumped, the deceased, was running across from west to east side, and in front of first loaded car, to turn a switch, after the first car had passed in on west road to west tip, so as to run the second loaded car in on the east road to east tip, and while in the act of crossing in front of the first car, he either tripped against something or slipped and fell. One of his legs was across the west rail, the car running over and breaking it between the knee and instep, and crushing him between knee and hip—sustaining injuries from which he died in four days after.

No. 8.—George Shively, driver, age seventeen years, killed in Short Mountain and Lykens Valley colliery on May 11, by being crushed between top of loaded mine car and chute.

Deceased at time of accident was with his mule bringing loaded car out from gangway face to turnout at top of gravity plane. He was standing on the front bumper of car, at high side of gangway, riding out; in passing he was caught between top side of car and chute. When found dead by one of the gangway men, about a quarter of an hour after leaving face of gangway, he was lying on his left side partly on top of car and bottom of chute.

By the evidence, it appears there was a grade from a short distance out from gangway face to a point near chute where he was caught, which require a sprag being put in wheel of car to prevent it from running too fast. After taking the sprag out he jumped on high-side of car, and before he had time to get on low-side bumper he was caught.

No. 9.—Daniel Gallagher, miner, age forty-eight years, fatally injured on May 29, by being crushed between empty mine car and chute in Lancaster colliery; died on 31st, leaving a wife and eight children.

This accident occurred early in the morning. The first trip of six empty cars were being hauled in gangway to be loaded; deceased was standing on high side outside of his chute; as they were passing him he attempted to uncouple the last car to load it; in doing so he was caught between top of car and chute, sustaining injuries from which he died in two days after.

No. 10.—Thomas Pendergast, driver, age twenty-one years, fatally injuried on June 13, in Locust Gap colliery, by being crushed between loaded mine cars while uncoupling them. He died same evening. Single man.

About between the hours of two and three o'clock in the afternoon he was, with his mule, hauling two loaded cars from west to east side of slope. When about opposite the slope bottom, and while attempting to uncouple the last car from the first, his head was crushed between the bumpers, fracturing his skull; from the injuries received he died in about six hours after.

No. 11.—John A. Logan Rhoads, driver, age fourteen years, fatally injured on July 19, in Hickory Ridge breaker, by being caught in rolls; died same evening.

Deceased was employed driving from slope to breaker. By the evidence of his father (who is outside foreman) the dump chute was blocked with coal; deceased went to help two men who were feeding breaker; while in the act of throwing a lump of slate into slate chute, he slipped into one of the feed holes, (about nine and a half inches square.) His right leg was caught and drawn in nearly up to the hip in rolls, inflicting injuries of such a nature as to cause death same evening.

No. 12.—Thomas Tyeck, driver, age fourteen years, fatally injured on September 8th at Henry Clay colliery, outside, by being run over by dirt dumper at dirt bank.

At time of accident deceased was, with his mule, taking a car (dumper) of dirt out to dump at end of dirt bank, and going at lively pace. While attempting to unhitch, the mule turned out, the tail chain catching deceased and throwing him under car, inflicting injuries such as to cause his death in about eight hours after accident.

No. 13.—Alfred Hepler, driver, age seventeen years, killed by being run over by mine car in Summit slope of the Williamstown colliery, on September 10, 1883.

By the evidence given at coroner's inquest, deceased was pulling a loaded car on turnout. He ran before the mule to turn the tongues for loaded track. He had the low side tongue turned, and was turning the high side tongue, when the mule struck against him, knocking him down, the car catching and crushing him in such a manner as to cause his death in a short time after receiving the injuries.

No. 14.—John Dewalt, Junior, driver, age fourteen years, fatally injured on September 15th by being run over by dirt dumper on dirt bank of Williamstown colliery.

Deceased was, with his mule, bringing an empty dirt dumper from dump (at end of dirt bank) to turnout (where locomotive runs to). He

was sitting on front bumper, and reached to give the mule a cut of his whip. In doing so he overreached himself and fell in front of dumper, it running over and injuring him so as to cause his death in half an hour after accident.

No. 15.—Andrew Martin Row, driver, age eighteen years, fatally injured on September 17th by being run over by loaded mine cars at bottom of No. 3 slope of the Williamstown colliery.

Deceased was employed as driver on bottom of No. 3 or deep slope, pulling out the empty cars from bottom of slope on turnout, and pulling in the loaded ones preparatory to hoisting them. About half-past four in the evening he was pulling in two loaded cars from west turnout into " Y " at bottom of slope. While in the act of unhitching the mule he slipped on rail and fell, the front car running over him, inflicting injuries from which he died in about twelve hours after.

No. 16.—Lewis Mieskie, miner, age twenty-four years, fatally injured in Enterprise colliery, on October 25th, by being crushed between loaded mine car and gangway rib. Died on November 8, 1883, leaving a wife. On day of accident deceased was working in a gangway known as the Central. He was running down a truck or small mine car loaded with bottom slate and rock, (the gangway having a considerable grade.) In running it down he failed to put sufficient sprags in to lessen its speed. It struck against other loaded cars which were standing on gangway, throwing the hind end off track and over against gangway side, catching and crushing him. From the injuries received he died in fourteen days after.

No. 17.—Michael Kennedy, laborer, age seventeen years, fatally injured on December 3 by being struck by flying *debris* of broken dirt-dumper at bottom of Big Mine Run Colliery dirt-plane; died same evening; single man. At time of accident deceased was employed hitching on the loaded and unhitching off the empty dirt-dumpers at bottom of dirt-plane. At about eight o'clock, on the morning of accident, John Geiting, one of the drivers on top of dirt-bank, failed to timely sprag the empty dumper in coming in from dirt-bank dump towards head of dirt-plane, thereby the empty dumper running over and down plane striking against a loaded dumper which was hitched on to rope, causing pieces to fly in different directions. When found the box of a dumper was laying on his legs and all covered with blood, receiving such injuries as caused his death on same evening.

No. 18.—Ernst Gower, miner, age thirty-three years, fatally injured on December 6 while riding on loaded gun boat, or large car, up coal-plane at Cameron colliery. He died same evening, leaving a wife and two children.

Deceased was on his way home after having done his day's work. When outside and passing by he got on the loaded car to ride up to top or near it. While in the act of doing so he got his left thigh broke and nearly torn off, together with other bodily injuries, which caused his death in a short time after accident.

No. 19.—Henry Betterman, door-tender, age fourteen years, fatally injured on December 31 by being crushed under locomotive cylinder outside at West Brookside colliery; died in about four hours after receiving the injuries.

Deceased was employed attending door in water-level tunnel. A locomotive is used in this tunnel to haul in the empty and haul out the loaded mine cars to and from the No. 3 slope. This boy Betterman generally rode out from his door on the loaded trip and in on locomotive or empty trip so far as his door. At time of accident, the engineer, William J. Shadle, was running the locomotive west, towards tunnel mouth outside for the purpose of getting past the tongue or switch to run back east to empty trip of cars to take them inside. In running west, when about twenty-two feet east of tongues, the engineer noticed there was something wrong; he reversed the locomotive, and while reversing it he heard a voice saying, "Oh!" He (Shadle) looked out and saw deceased's foot under the cylinder. While deceased was being carried away, it was discovered that he was fatally injured, from which he died same evening.

Explosions of Carbureted Hydrogen Gas.

No. 1.—Patrick Regan, miner, aged thirty-seven years; August Welker, laborer, aged twenty-two years; Andrew Coyle, laborer, aged nineteen years, killed in Keystone colliery by an explosion of gas on April 30.

Charles Tyler, miner, aged thirty-nine, fatally injured by same explosion. Died on May 2, leaving a wife and four children. Regan left a wife and six children. Coyle and Welker were single men.

On day of explosion Tyler, Welker, and a man by the name of Conrad Walters were employed driving the west gangway. Regan and Coyle were working in monkey or return air-course. Between the hours of ten and eleven o'clock, A. M., the pillar between Nos. 4 and 5 breast commenced to run, giving off a large quantity of gas, which necessitated the men working in the breasts to quit work for that day. The volume of gas given off backed an air-current of between twenty-five and twenty-six thousand cubic feet per minute out the gangway or intake, a distance of about 150 yards, some of which was carried in with the air-current into gangway face. According to the evidence given at inquest, Conrad Walters went out a short distance from gangway face to eat part of his dinner. While eating he heard Tyler tell Welker to quench his light. They ran out the gangway, Walters first, Welker and Tyler after him. When Tyler came out to the manway (the monkey manway) he rapped on chute for Regan and Coyle. He (Walters) looked back and saw Tyler's lamp-light. That was the only light he saw at the time. Shortly after the explosion took place, killing Coyle and Welker outright. Regan died same evening, and Tyler died in two days after.

No. 2.—Richard Heim, miner, aged twenty-seven years, fatally injured by an explosion of gas in Cameron colliery, on May 19. Died on 23d.

He was a single man. Deceased and another miner named Benjamin F. Martz were working in No. 4 breast, east inside slope, west gangway. After going down to bottom of slope in the morning of accident, deceased asked John Ruffing, the fire-boss, how their place was, to which he replied it was all right. They (Heim and Martz) went in and up the inside manway of breast No. 3 to fifth or upper cross-heading, taking with them some timber, which they left in heading until needed in breast. Martz got the oil-can to fill his lamp. Heim started to go up to face of breast. Martz remarked to him that he had better take the safety-lamp and try the breast to see if there was any gas, to which he replied that the fire-boss said it was all right. He (Heim) continued going up. Before Martz had his lamp filled with oil the explosion took place. Deceased when found was at bottom of manway. He received such injuries as caused his death in a few days after the accident.

No. 3.—Stanislaw Moreshall, miner, aged thirty-two years, fatally injured in Luke Fidler colliery by being burned by an explosion of C. H. gas on May 23. Died on June 5, leaving a wife and three children. At time of accident it appears deceased was driving a cross-heading through pillar from his out to adjoining breast. He considered that it was near being driven through. He went around and up the next outside breast to knock to his butty or partner to ascertain how far it was from being through the pillar. When up near the place he fired the gas, which burned him on the face, neck, arms, hands, and back, from which injuries he died in twelve days after accident. In his evidence he said the inside boss and himself were up in the place the day before the accident. There was no gas in it then.

Miscellaneous Underground.

No. 1.—John Runkle, miner, age 37 years; suffocated by foul air in Carson colliery, March 2, 1883; he left a wife and four children.

At time of accident deceased and another miner, named Charles Sheetz, were employed driving a counter-chute up from face of breast No. 17, west south dip, to a counter-gangway. According to the evidence taken at inquest, the ventilation was so poor that they could hardly stay up in the chute long enough to permit of the drilling and blasting of one hole. Previous to the accident, on different occasions, they asked the inside boss for a fan to ventilate the place, to which he replied that he had none, and there was none about the place, (meaning the colliery.) On day of accident, after going in to work in the morning, deceased commenced to drive down from counter-gangway to intersect the hole which was being driven up. Sheetz went up to work in hole which was being driven up. Both men started to drill a hole, each to meet, and, as they thought, to knock the hole through. After both holes were fired they waited for some time; Sheetz went up to where deceased was driving down; they talked together for a while; Sheetz complained of his not feeling well on account of the

bad air. Deceased said he would go down and go up the hole and rap to Sheetz. Accordingly deceased went down and up to face of hole, rapped three times to Sheetz; they talked through the coal to each other on the proximity of the holes to each other. Deceased said he was going down, to which Sheetz replied, "All right." Then he (Sheetz) started to shovel the coal up out of the chute. He waited there about from ten to fifteen minutes; deceased did not come up to him; then he (Sheetz) went down towards where he expected to find deceased, but could not find him. Then he went out to the slope bottom, where he met the inside boss; he asked him if he (the boss) had seen his butty, to which he replied in the negative. They both went in and up to the second cross-heading, near where Sheetz and deceased had been working. Sheetz went up the chute part way, found deceased dead, lying on his back, his feet down and head up the pitch.

No. 2.—Andrew Cray, miner, age thirty-eight years, suffocated by carbureted hydrogen gas in Tunnel colliery on March 8, 1883. He left a wife and six children. At time of accident deceased was driving a manway from west gangway up to first cross-heading. The coal gave a crack or bump, caused by the force or compression of gas. The vein being pitching on an angle of between seventy and eighty degrees caused the face of manway to run about fifteen feet up the pitch, giving off fire-damp in such quantity as to suffocate deceased in about fifteen minutes. In his efforts to get down (when the manway began to run) he was caught when about thirteen feet feet from gangway with the loose stuff which had run out and down from face of manway against a pole which was used to keep the air-pipes in their place, from where he could not be extricated until after he was suffocated.

No. 3.—John O. Straw, driver, age eleven years, killed in Big Mountain colliery, on April 21, 1883, by a gangway collar falling on him.

At time of accident deceased was employed on night shift in No. 2, or mud drift, helping his brother driving mule. About half-past three o'clock, A. M., both were going towards plane or inside slope. Deceased went to the repairmen's box, which was on turnout about four or five yards inside of gangway which leads to inside slope. After filling his lamp with oil he was on his way towards inside slope; while passing point where inside slope gangway intersects the turnout a collar and a large mass of coal and slate fell; one end of the collar in falling caught and instantly killed him.

No. 4.—Maracel Hoffman, laborer, age fourteen years, killed in Henry Clay No. 1 colliery, on April 27, by being struck on head by pulley while riding up west inside slope in empty mine car.

Deceased was working with his father. After they had their day's work done they were riding up the west inside slope between two and three o'clock, P. M., in an empty mine car. Deceased was in the car; his father was standing outside on front bumper. When about thirty-five or forty yards up from bottom a pulley (which the iron wire rope run on in slope)

got loose from its fastenings, came down, striking deceased on the head and killing him instantly.

No. 5.—Mathew Burkuskie, miner, age thirty-three years, fatally injured by the explosion of a keg of powder in Cameron colliery on May 10. Died next day. Single man.

On morning of accident, after going into work deceased went into cross-heading to make a cartridge of powder for a hole which his butty (Frank Androscovick) was drilling. While doing so a spark from his lamp fell into the keg of powder, exploding it and burning him. The injuries which he received caused his death the day after accident.

No. 6.—Richard Proctor, miner, age forty-two years, fatally injured in Merriam colliery, on June 17, by his head being crushed between slope timber while timbering in hoisting slope. He died in about an hour after accident, leaving a wife and eight children. At time of accident deceased, with others, were putting in relief timber in hoisting slope. They were going to wedge or tighten a set which they were after putting in when his (deceased) attention was called by one of the other men to the dangerous character of the set of timber next above them, to which he paid no attention. Shortly after which the set of timber fell down in the top crushing deceased's head, receiving such injuries as to cause his death in one hour afterwards.

No. 7.—John Higgins, driver, aged sixteen years, killed by an explosion of dualin powder and caps in Cameron colliery, June 22. On morning of accident John Sleif was loading a car out of chute of breast No. 8, east No. 9 vein, west inside slope. Deceased was sitting on low side of gangway near dualin powder and caps. After Sleif had the outside end of car loaded he came down out of chute to move it out to load the inside end. While in the act of taking a sprag out of one of the wheels of car the explosion took place. When deceased was found (after the smoke had cleared away) life was extinct.

No. 8.—Odius Long, driver, age fifteen years, killed in Big Mountain colliery, September 10, by being crushed under inside counter chute tip pole while crossing under it from one side of car to the other.

Deceased while dumping a loaded car into counter chute while passing from east to west inside of car and under tip pole, the car fell back, the pole striking and crushing deceased under, it killing him.

Premature Blasts.

No. 1.—Thomas Garragh, chute starter, age thirty-three years, killed by a premature blast while tamping a hole in a rock in No. 42 breast battery, west gangway, Bast colliery, on January 5. He was a single man. By the evidence elicited at inquest deceased was tamping a hole in rock as stated when the blast went off, killing him instantly.

No. 2.—Richard Lewis, senior, miner, aged fifty-six years, killed by a premature blast in Luke Fidler colliery, on August 22, leaving a wife and one child. Deceased, at time of accident, with three other men, were driving a gangway, which was in a rock-fault. Deceased and one of the men were putting in a hole on low side, while two others named George Rickets and Richard Lewis, junior, were tamping one on high side of gangway. They (Rickets and Lewis, junior,) had three or four handsfull of tamping on the powder, and were striking back the (copper) needle towards the back of hole when the blast exploded, the tamping striking deceased, killing him instantly.

Miscellaneous Overground.

No. 1.—John Noble, foreman, age twenty-seven years, fatally injured by being scalded by steam by explosion of boiler at Locust Spring colliery, March 11. Died on the thirteenth. He was a single man.

At time of accident the water was low in the boilers. Deceased was at feed-pump engine at south end of boilers running it to feed the boilers when the explosion took place, resulting as above stated.

No. 2.—John Sheeran, car-oiler, aged fifteen years, fatally injured at North Ashland colliery, October 4, by being kicked in the stomach by a mule. Died in two days after receiving injuries.

Deceased was employed as mine car-oiler outside at breaker. On day of accident he swapped jobs with Patrick Gallagher, dirt-bank driver. Between ten and eleven o'clock, A. M., deceased was out at end of dirt bank with a dumper of dirt, the mule kicked him in the stomach inflicting injuries from which he died in two days after accident.

Ventilation.

It is a source of more than ordinary pleasure that I am enabled to state that the improvement in the ventilation of the collieries in the district has received more attention the past year than any preceding year since my first appointment, with the exception of 1880. There were eleven fans erected during the last year, as follows:

Two at Short Mountain and Lykens Valley colliery, Lykens Valley Coal Company, nine and sixteen feet diameter.

One at West Brookside colliery, Philadelphia and Reading Coal and Iron Company, eighteen feet diameter.

One at North Franklin No. 2 colliery, Philadelphia and Reading Coal and Iron Company, twelve feet diameter.

One at Burnside colliery, Philadelphia and Reading Coal and Iron Company, fifteen feet diameter.

One at Stirling colliery, Kendrick and Company, twelve feet diameter.

One at Hickory Ridge colliery, Mineral Railroad and Mining Company, twelve feet diameter.

One at Bellman colliery, S. S. Bickel and Company, fourteen feet diameter.

One at Morris Ridge colliery, Isaac May and Company, twelve feet diameter.

One at Logan colliery, Lewis A. Riley and Company, fourteen feet diameter.

One at Hazle Dell colliery, Lewis A. Riley and Company, twelve feet diameter.

Making in all sixty-seven fans in the district, which comprises fifty-two collieries of all classes.

The Williams Improved Davy Safety Lamp with Patent Extinguisher.

This improvement of a tube or sleeve encircling the wick-tube, which is attached to a wire passing down through oil-cup to lamp-bottom, where a recess is formed to prevent the wire being pressed upwards, carrying the sleeve up and extinguishing the light when the lamp is stood on its bottom. In making examinations testing for gas the flame may be reduced to any size by pressing upwards with the finger or thumb the wire at bottom of lamp, thereby the outside tube regulates or extinguishes the light if necessary. Thus dispensing, in the event of sudden rushes of gas, with the very often tedious process of pulling the wick down with the picker. By this improvement the men are enabled to extinguish the light in an instant.

Having examined carefully this improvement, I must say it is the simplest and best device I have yet seen to extinguish the light. Had it been on safety-lamps in years gone by, very probably many an explosion, loss of life, and destruction of property could have been averted.

Recapitulation of Fatal Accidents.

Falls of coal, roof, etc.,	26
Mine cars and machinery,	19
Explosions of CH. gas,	6
Explosion of powder,	1
Premature blasts,	2
Miscellaneous underground,	8
Miscellaneous overground,	2
Total,	64

Recapitulation of Non-Fatal Accidents.

Falls of coal, roof, etc.,	49
Mine cars and machinery,	44
Explosions of CH. gas,	19
Explosions of powder,	4
Premature blasts,	4
Miscellaneous underground,	36
Miscellaneous overground,	14
Total,	170

REGISTER OF FATAL CASUALTIES—Shamokin Division.

Number.	Date.	Names.	Collieries.	Occupation.	Age.	Married or Single.	Number of children.	Remarks.
1	Jan. 5	Thomas Garrah,	Bast,	Starter,	33	Single,		Killed by a premature blast.
2	31	John Smith,	Centralia,	Engineer,	49	Married,	8	Killed; caught in breaker machinery.
3	Feb. 7	Theodore Muscovitch,	Logan,	Miner,	38	Single,		Killed by a fall of top coal.
4	13	William Grosenoskie,	Logan,	Miner,	31	Married,	1	Fatally injured by a fall of top coal.
5	16	John Donahoe,	Luke Fidler,	Driver,	15			Killed; head crushed between loaded mine cars.
6	27	John Rue,	Mt. Carmel Shaft,	Car runner,	20	Single		Killed; crushed between loaded mine car and gangway.
7	27	Joseph L. Paul,	Gordon,	Laborer,	28	Married,	1	Fatally injured by coal battery giving way.
8	March 2	John Runkle,	Carson,	Miner,	37	Married,	4	Suffocated by foul air.
9	8	Andrew Cray,	Tunnel,	Miner,	38	Married,	6	Suffocated by CH. gas.
10	10	James McLaughlin,	Black Diamond,	Miner,	44	Married,	1	Killed by a fall of top coal; died 13th inst.
11	11	John Noble,	Locust Spring,	Fireman,	27	Single,		Fatally injured by the explosion of a boiler.
12	15	Thomas Ruddy,	Centralia,	Driver,	19	Single,		Fatally injured; crushed between dirt dumper and stringer.
13	23	Frank Eckert,	Logan,	Miner,	52	Married,	6	Fatally injured by a fall of coal; died 25th inst.
14	April 12	Arthur Long,	Mt. Carmel Shaft,	Door tender,	14			Fatally injured; skull fractured.
15	14	John Wania,	Luke Fidler,	Miner,	32	Single,		Killed by a fall of slate.
16	21	John O. Straw,	Big Mountain,	Driver,	10			Killed; a turn-out collar fell on him.
17	26	Louis Krebs,	West Brookside,	Miner,	42	Married,	5	Killed by being run over by mine car.
18	27	Maracel Hoffman,	Henry Clay,	Laborer,	14			Killed; struck by pulley while riding up slope.
19	30	August Welker,	Keystone,	Laborer,	22	Single,		Killed by an explosion of CH. gas.
20	30	Andrew Kieley,	Keystone,	Laborer,	19	Single,		Killed by an explosion of CH. gas.
21	30	Patrick Reagan,	Keystone,	Laborer,	37	Married,	6	Killed by an explosion of CH. gas.
22	May 2	Charles Tyler,	Keystone,	Miner,	39	Married,	4	Killed by an explosion of CH. gas.
23	5	Martin Flemming,	Pennsylvania,	Miner,	22	Single,		Killed; fall of rock.
24	9	Samuel Kolencavidge,	Enterprise,	Laborer,	26	Married,	1	Fatally injured; run over by loaded mine car.
25	11	Mathew Birkuskle,	Cameron,	Miner,	33			Fatally injured; explosion of a keg of powder.
26	11	George Shively,	Short Mountain,	Driver,	17			Killed; caught between top of mine car and chute.
27	23	Richard Helm,	Cameron,	Miner,	27	Single,		Fatally injured by an explosion of gas.
28	31	Daniel Gallagher,	Lancaster,	Miner,	48	Married,	8	Fatally injured; caught between top of mine car and chute.
29	June 5	Stanislaw Moreshall,	Luke Fidler,	Miner,	32	Married,	3	Died from injuries received May 23, 1883.
30	12	Pat. McAndrew,	Preston, No. 2,	Miner,	46	Married,	7	Killed by a fall of coal.
31	13	Thomas Pendergast,	Locust Gap,	Driver,	21	Single,		Killed while attempting to uncouple mine cars in motion.
32	17	Richard Proctor,	Merriam,	Miner,	42	Married,	8	Killed; head crushed between two collars while timbering slope.
33	22	John Higgins,	Cameron,	Driver,	16			Killed by an explosion of Dualin powder.
34	July 2	Andrew Toomas,	Excelsior,	Miner,	27	Married,	2	Killed by a fall of top slate.
35	6	Alfred Delvol,	Cameron,	Miner,	28	Married,	2	Killed by a fall of coal.
36	19	J. A. L. Rhoads,	Hickory Ridge,	Driver,	14			Killed; caught in breaker rolls.
37	29	Peter Collihan,	Continental,	Miner,	39	Married,	4	Died from injuries received by a fall of slate.
38	30	George Sopka,	Pennsylvania,	Laborer,	21	Single,		Died from injuries received by a fall of top rock.
39	Aug. 17	Elias Haas,	Peerless,	Miner,	29	Married	5	Killed by a fall of top slate in gangway.
40	20	Sampson Cook,	Cameron,	Miner,	46	Married,	6	Killed by a fall of top slate.
41	21	William James,	Williamstown,	Miner,	50	Married,	4	Killed by a fall of top slate.
42		Richard Lewis,	Luke Fidler,	Miner,	56			Killed by a premature blast.

REGISTER OF FATAL CASUALTIES—Continued.

Number.	DATE.	Names.	Collieries.	Occupation.	Age.	Married or Single	Number of children.	Remarks.
43	. .	Emanuel Morgan, . . .	West Brookside, .	Laborer, .		Single,	.	Killed by a fall of top slate.
44	Aug. 29	Dominic Ambrosavage,	Enterprise, . . .	Miner, ...	23	Single,		Killed by a fall of top rock.
45	30	William Muldowney, .	Big Mine Run, . . .	Miner, ...	42	Married, .	3	Killed by a fall of top coal.
46	Sept. 8	Thomas Tyeck, ...	Henry Clay, . . .	Driver, ...	14	.	. .	Killed by being run over by dirt dumper.
47	10	Alfred Hepler, ...	Williamstown, . .	Driver, . .	17	. . . .		Killed by being run over by loaded mine cars.
48	10	Odius Long, ...	Big Mountain, . . .	Driver, . . .	15			Killed by being struck and crushed under pole of top counter chute.
49	. .	Thomas Cook, ...	Short Mountain, . .	Miner, ...	51	Single,	. .	Killed by a fall of top slate.
50	15	John Dewalt, ...	Williamstown, . .	Driver, . . .	14	. .	.	Killed by being run over by dirt dumper.
51	17	Andrew M. Row, . . .	Williamstown, . . .	Driver, . . .	18	. . . . .	.	Fatally injured by being run over by dirt dumper.
52	26	John O'Neill, ...	Merriam, . . .	Laborer, . . .	20	. . . . .		Killed by a fall of coal.
53	Oct. 6	John Shuran, ...	North Ashland, . .	Driver, ...	15	. . . . .	.	Killed by being kicked in the stomach by a mule.
54	9	Elmer W. Wagner, .	West Brookside, .	Driver, ...	19			Fatally injured by a fall of coal.
55	23	Michael Viglandorski, .	Henry Clay, . . .	Miner, ...	46	Married, .	6	Killed by a fall of top coal.
56	Nov. 1	William Parnell, . .	Williamstown, . . .	Miner, ...	32	Married, .	9	Killed by a fall of top rock.
57	7	Cassimer Hentz, . .	Short Mountain, . .	Miner, ...	37	Married, .	. .	Killed by a fall of slate.
58	8	Lewis Mleskie, ...	Enterprise, . . .	Miner, ...	24	Married,		Died from the effect of injuries received October 28, 1883.
59	24	James Naven, ...	Locust Spring, . . .	Miner, ...	21	Single,		Killed by a fall of top rock.
60	24	Rudolph Keller, ...	Monitor, . . .	Miner, . . .	56	Married, .	4	Fatally injured by a fall of coal.
61	Dec. 3	Michael Kennedy, . .	Big Mine Run, . . .	Laborer, .	17			Killed; struck by piece of dirt dumper at bottom of plane.
62	6	Ernst Gouer, ...	Cameron, ...	Miner, ...	33	Married, .	2	Killed while riding up coal plane on loaded gunboat.
63	18	Thomas McCay, . . .	Big Mine Run, . . .	Miner, ...	50	Married, .	4	Died from injuries received by a fall of top slate.
64	31	Henry Betterman, . . .	West Brookside, . .	Door boy, . . .	14	. . . . .	.	Killed; crushed between cylinder of locomotive and ground.

REGISTER OF NON-FATAL CASUALTIES.—Shamokin Division.

No.	Date.	Names.	Collieries.	Occupation.	Remarks.
1	Jan. 4	Charles Fisher,	Reliance,	Door-boy,	Leg broken; fell while running.
2	5	James Davis,	Big Mine Run,	Miner,	Body injured by a fall of coal and dirt.
3	6	James Strausser,	Luke Fidler,	Driver,	Leg broken; struck by mine car.
4	8	Rudolph Raush,	West Brookside,	Miner,	Leg fractured and shoulder bruised by a fall of rock.
5	9	John Diehl,	Pennsylvania,	Slate-picker,	Arm broken; fell down coal-bin in breast.
6	14	Hartman Knapp,	Logan,	Loader,	Arm fractured; mashed between railroad cars.
7	15	John Kirk,	Locust Spring,	C. wheeler,	Thumb broken; fell off bank while wheeling clippings.
8	18	Daniel Keiser,	Black Diamond,	Loader,	Rib fractured; fell off lumber on railroad car.
9	20	Daniel Carl,	Mt. Carmel Shaft,	Carpenter,	Knee injured while repairing chute.
10	26	John Yates,	Pennsylvania,	Miner,	Leg broken by a fall of coal.
11	30	Jacob Russ,	Burnside,	Driver,	Toe mashed; run over by a loaded mine car.
12	Feb. 2	John S. Hoover,	Bear Valley,	Miner,	Two fingers and part of hand cut off while making wedges.
13	2	Patrick Mularkey,	Tunnel,	Miner,	Arm broken; breast prop fell on it.
14	5	Andrew Hannon,	Tunnel,	Miner,	Hand cut by fall of coal.
15	7	Noah Marooy,	Big Mountain,	Laborer,	Body injured by a fall of coal in gangway.
16	7	Joseph Javoduskie,	Logan,	Miner,	Body seriously injured by a fall of top coal.
17	7	John McCaffrey,	Bear Valley,	Miner,	Back of head and neck burned by a piece of burning coal falling on him.
18	8	Jacob Brient,	Monitor,	Driver,	Body injured by being run over by a mine car.
19	9	John Finlan,	Tunnel,	Starter,	Foot injured by a fall of coal.
20	10	John McDonald,	Bast,	Dirt-loader,	Leg broken; a mule fell on him.
21	13	August Effinger,	Burnside,	Miner,	Toe broken by fall of a piece of coal while starting battery.
22	15	Owen Donnelly,	Pennsylvania,	Miner,	Injured by falling down manway.
23	26	Frank Eckert,	Logan,	Miner,	Back seriously injured by a fall of coal.
24	28	Michael Hennehan,	Locust Spring,	Miner,	Head cut and arm broken by a fall of top coal.
25	March 8	Charles Smith,	Bast,	Carpenter,	Hand mashed.
26	10	Curtin Turner,	Williamstown,	Laborer,	Leg broken by the upsetting of a car.
27	10	Thomas Conry,	Henry Clay Shaft,	Laborer,	Head cut; struck by a piece of coal falling down shaft.
28	13	Patrick Dean,	Sterling,	Miner,	Slightly burned by CH. gas.
29	13	John Connor,	Bast,	Miner,	Eye cut; piece of coal flew from pick.
30	15	Aaron Klock,	Big Mine Run,	Miner,	Nose broken, bruised and cut about the head; fall of coal.
31	17	Thomas Hythe,	Locust Spring,	Miner,	Head cut by a fall of top coal.
32	19	William Baker,	Potts,	Loader,	Body injured; caught between car and prop in gangway.
33	26	John Reese,	Peerless,	Slate-picker,	Hand mashed; caught in small screen cog-wheels.
34	29	William Osman,	North Franklin, No. 2,	Laborer,	Head bruised while uncoupling mine cars.
35	.	Edward Britton,	Henry Clay Shaft,	Miner,	Arm broken between wrist and elbow.
36	.	A. H. Tiley,	Tunnel,	Pumpman,	Hand mashed; caught by bull pump-rod.
37	April 3	Irwin Reed,	Henry Clay Shaft,	Laborer,	Finger broken; caught between wire rope and pulley.
38	3	George W. Thomas,	Henry Clay Shaft,	Miner,	Slightly burned on face and hands by CH. gas.
39	4	John Smith,	Bear Valley,	S. P. man,	Leg broken and head and body injured; caught under descending cage.
40	4	John Crovolskie,	Luke Fidler,	Miner,	Thigh bone broken by a fall of slate.
41	4	John Bodeatskie,	Big Mountain,	Miner,	Body injured by a fall of slate.
42	13	George Kupzia,	Hickory Ridge,	Laborer,	Body injured; caught between cars and chute.
43	14	Robert Moore,	Williamstown,	Miner,	Leg broken by a fall of coal.
44	14	Michael Ogevitch,	Pennsylvania,	Miner,	Burned by an explosion of CH. gas.
45	14	John Filler,	Pennsylvania,	Miner,	Burned by an explosion of CH. gas.
46	18	William Ruffie,	Locust Gap,	Slate-picker,	Leg broken; plank broke precipitating him a distance of thirty feet.

REGISTER OF NON-FATAL CASUALTIES—Continued.

No.	Date.	Names.	Collieries.	Occupation.	Remarks.
47	April 19	James Ennis,	North Ashland,	Loader-boss,	Eye cut by a piece of coal striking him.
48	24	Nicholas Zemmers,	Henry Clay Shaft,	Miner,	Toe mashed by a fall of slate.
49	30	Conrad Walter,	Keystone.	Laborer,	Face and hands burned by CH. gas.
50	May 2	James Fullen,	Big Mine Run,	Driver,	Thigh bone broken and hip injured by mine cars.
51	7	Michael Monahan,	Continental,	Driver,	Leg broken; run over by empty mine cars
52	9	Charles Dougherty,	North Ashland,	Starter,	Leg broken; struck by a piece of coal.
53	10	Frank Androscoviteh,	Cameron,	Miner,	Burned on neck, face, and hands by an explosion of powder.
54	12	John Crawley,	Short Mountain,	Miner,	Thigh broken in two places by a fall of timber and slate.
55	15	Stephen McNamee,	Pennsylvania,	Miner,	Slightly burned by CH. gas.
56	16	John O'Rourke,	North Franklin, No. 2,	Loader,	Toes mashed by a piece of slate falling on them.
57	17	Henry Otto,	Burnside,	Roadman,	Leg broken; caught between car and fan pipe.
58	17	John Hagerty,	Greenback,	Miner,	Leg broken; struck by a piece of coal.
59	19	Herbert Sobey,	Logan,	Laborer,	Fingers mashed while coupling railroad cars; amputated.
60	29	Patrick Wilson,	Logan.	Miner,	Injured by coal flying from blast in next breast.
61	31	John Horan,	Centralia.	Miner,	Slightly burned by CH. gas.
62		Israel Derrick,	Mt Carmel Shaft,	Miner,	Finger cut by a piece of coal flying from pick; amputated.
63	June 4	Thomas Maloney,	Henry Clay Shaft,	Laborer,	Finger crushed; jammed between top of car and top slate in gangway.
64	4	Thomas Yanacoski,	Burnside,	Miner,	Leg broken; caught between collar and fan pipe.
65	5	Richard Hoefner,	Keystone,	Laborer,	Hips squeezed; caught between backswhich and mine car.
66	7	Anthony Boliskie,	Big Mountain,	Miner,	Injured by a fall of slate.
67	11	Charles Fisher,	Burnside,	Topman,	Finger mashed and piece of thumb cut off; caught between wire rope and pulley.
68	15	James Gamber,	Henry Clay Shaft,	Miner,	Back hurt and jaw broken by a fall of slate.
69	15	Joseph Miller,	Tunnel,	Miner,	Shoulder badly hurt and head cut by a piece of coal from blast.
70	21	Dennis Howard,	Preston, No. 2,	Miner,	Arm broken; caught between mine cars.
71	23	John McDonnel,	Bast.		Leg broken while running after mule.
72	July 2	Owen Monahan,	Centralia,	Laborer,	Burned on hands and face by CH. gas.
73	7	John Harris,	Henry Clay Shaft,	Miner,	Left arm broken by a fall of slate.
74	8	Peter Monse,	Cameron,	Miner,	Hurt by a fall of top.
75	10	Aaron Greiner,	Summit Branch,	Miner,	Leg broken by a fall of top rock.
76	19	George H. Horn,	Henry Clay Shaft,	Driver,	Kicked by a mule.
77	20	Martin Manning,	Mt. Carmel Shaft.	Slate-picker,	Arm broken; fell while starting a chute.
78	22	Oscar Reed,	Henry Clay Shaft,	Miner,	Cut in the face by a piece of coal falling from face of breast.
79	24	William Zimmerman,	Mt. Carmel. No. 1,	Slate-picker,	Leg broken; caught in monkey-roller.
80	26	Calvin Beisel,	Big Mountain,	Miner,	Injured by a fall of slate and coal.
81	31	Mahlon Koch,	Sterling,	Miner,	Burned by explosion of gas.
82	31	Reuben Seagel,	Peerless,	Slate-picker,	Right arm shattered about four inches from shoulder.
83	Aug. 1	Michael Rowley,	Buck Ridge,	Miner,	Burned on face, neck, and hands by CH. gas.
84	6	Michael Moone,	Tunnel,	Laborer,	Injured by bar running into his body.
85	8	Thomas Harris,	Sterling,	Miner,	Leg broken by a fall of slate.
86	9	William Snyder,	Henry Clay, No. 1,	Laborer,	Leg broken by a mine car running over it.
87	9	John Powell,	Bast,	Miner,	Head and body bruised by a fall of coal.
88	11	John Stroboiskie,	Morris Ridge,	Laborer,	Injured about body by a fall of coal.
89	14	James Harris,	Henry Clay, No. 1,	Miner,	Big toe mashed by a prop falling on it.
90	18	John Dovey,	Lykens Valley,	Miner,	Seriously injured by a rush of coal in breast.
91	21	James Edwards,	Potts,	Miner,	Thumb broken and hip injured.
92	22	Jacob Delbert,	Peerless,	Miner,	Slightly injured by a fall of top slate.

93		23	Richard Lewis, junior,	Luke Fidler,	Miner,	Burned on face, neck, and hands by the premature explosion of a blast.
94		24	George Rickerts,	Luke Fidler,	Laborer,	Burned by the premature explosion of a blast.
95		24	Paul Maglinskie,	Sterling,	Miner,	Back broken; run over by loaded cars.
96		25	John Paul,	Cameron,	Driver,	Leg broken.
97		28	William Barnett,	Pennsylvania,	Driver,	Injured by falling under mine cars.
98		30	Henry W. Fry,	Peerless,	Miner,	Burned by the explosion of powder.
99		30	Matthew Uravitch,	Cameron,	Miner,	Burned by the explosion of powder.
100		30	John Smith,	Cameron,	Miner,	Burned by the explosion of powder.
101		31	Frank Myers,	Preston, No. 3,	Laborer,	Leg broken while attempting to uncouple cars.
102	Sept.	1	Alfred Rhoads,	Potts,	Engineer,	Leg broken; clack-door of pump fell on it—amputated.
103		3	James Powell,	Williamstown,	Miner,	Seriously injured by a fall of slate.
104		6	Isaac Hobbs,	Ruck Ridge,	Miner,	Slightly burned by the explosion of CH. gas.
105		6	Charles Jenkins,	Buck Ridge,	Miner,	Slightly burned by the explosion of CH. gas.
106		7	Daniel Horan,	Centralia,	Miner,	Injured by a fall of rock.
107		7	Thomas Gallagher,	North Ashland,	Door-boy,	Shoulder-blade broken; fell under dirt dumper.
108		8	Jacob Dietz,	Locust Gap,	Miner,	Leg broken by a fall of coal.
109		11	Frank Bohannan,	Keystone,	Laborer,	Jaw cut and back squeezed; fell under dirt dumper.
110		11	John Robotskie,	Reliance,	Miner,	Breast injured by a piece of top coal falling on him.
111		13	John Lavelle,	Enterprise,	Driver,	Squeezed between mine cars and timber.
112		14	John Mallusko,	Centralia,	Laborer,	Thigh-bone broken by a fall of coal.
113		14	James Devitt,	Buck Ridge,	Miner,	Slightly burned by the explosion of CH. gas.
114		14	Thomas Stanton,	Buck Ridge,	Miner,	Slightly burned by the explosion of CH. gas.
115		14	James Rowley,	Buck Ridge,	Fan boy,	Burned in face, hands, and neck by CH. gas.
116		14	Adam Berry,	Big Lick,	Miner,	Seriously injured; caught between top of mine car and top rock.
117		18	Jacob Patrick,	West Brookside,	Door-boy,	Leg broken; struck by mine car.
118		19	John Kane,	Preston, No. 2,	Driver,	Arm broken; caused by being thrown against mine car.
119		25	James K. Strasser,	Luke Fidler,	Driver,	Leg broken; caused by mine car jumping track.
120		25	Charles Rodgers,	Merriam,	Door-boy,	Burned by explosion of CH. gas.
121		29	Thomas Hurst,	Big Mine Run,	Miner,	Small bone of leg broken; struck by a lump of coal.
122	Oct.	1	William Rutalls,	Enterprise,	Miner,	Leg broken.
123		2	W. P. Strausser,	Luke Fidler,	Driver,	Leg broken.
124		2	Michael McAuliff,	Williamstown,	Driver,	Arm seriously injured by falling under a mine car—amputated.
125		6	Michael Cosgrove,	Locust Spring,	Miner,	Head, shoulders, and back injured by a fall of coal.
126		10	Patrick Sullivan,	Tunnel,	Laborer,	Body injured; caught between gunboat and side of bridge wall of dirt-plane.
127		13	John Harrison,	Preston, No. 2,	Contractor,	Head injured; struck by battery.
128		16	Michael Pulkhard,	Peerless,	Laborer,	Thumb cut off; caught under wheel of mine car.
129		17	Frank Vanuse,	Morris Ridge,	Miner,	Head and shoulders injured by a fall of coal.
130		17	George Beury,	Sterling,	Driver,	Hurt by mine cars.
131		17	Hiram Heet,	Cameron,	Miner,	Leg broken by a fall of top rock.
132		18	Eitz Kramer,	Bear Valley,	Driver,	Injured internally; kicked by a mule.
133		19	John Farrell,	Preston, No. 2,	Rock dumpman,	Wrist fractured by a piece of rock falling on it.
134		20	Michael McNulty,	Centralia,	Starter,	Injured about the head while starting a battery.
135		22	David C. Davis,	Burnside,	Laborer,	Arm broken while attempting to stop a runaway mule.
136		23	Michael Hinkle,	Reliance,	Miner,	Two ribs broken by a premature blast.
137		25	Eli Goodman,	West Brookside,	Miner,	Leg broken by a fall of slate.
138		29	William Devanney,	Preston, No. 2,	Breaker oiler,	Leg broken; fell while traveling through breaker.
139	Nov.	6	James Nicholson,	Buck Ridge,	Contractor,	Ankle dislocated by a fall of rock.
140		7	Andrew Budgtiel,	Hickory Swamp,		Injured badly by falling down slope.
141		8	George Shindle,	Reliance,	Runner,	Two fingers cut off; fell under a wagon.
142		8	Herman Groener,	North Ashland,	Timber man,	Rib broke; squeezed between mine car and gangway leg.
143		13	John L. Thompson,	Williamstown,	Loader,	Run over by mine car; arm amputated.
144		15	Philip Huntzinger,	Locust Gap Jig,	Jig attender,	Arm broken and elbow dislocated; caught between jig-belt and wheel.
145		17	Leonidas Helt,	Lykens Valley,	Laborer,	Leg broken below knee while in the act of pulling car down off tip.

REGISTER OF NON-FATAL CASUALTIES.—Continued.

No.	DATE.	Names.	Collieries.	Occupation.	Remarks.
146	Nov. 19	Royal Bressler,	Peerless,	Miner,	Leg broken by a piece of coal falling on him.
147	20	Alfred Woodward,	Buck Ridge,	Driver,	Arm injured; caught between top of car and timber.
148	20	Levi Gottshall,	Sterling,	Miner,	Slightly burned by explosion of CH. gas.
149	20	John Gottshall,	Sterling,	Miner,	Seriously burned by explorion of CH. gas.
150	20	George Bengen,	Centralia,	Loader,	Leg broken by piece of coal rushing down chute.
151	22	William Boyer,	Monitor,	Miner,	Injured about the body by a fall of coal.
152	23	Reuben Morgan,	Mt. Carmel Shaft,	Spragger,	Arm broke; caught between mine cars.
153	25	William Oestreich,	Bast,	Ash-boy,	Arm broke; fell from mule.
154	27	David Underkoffer,	West Brookside,	Miner,	Leg broken by a fall of slate.
155	27	John Flanagan,	Bast,	Loader,	Severely injured about head and body; caught between mine car and slope collar.
156	29	Morgan Harrison,	Burnside,	Door-boy,	Wrist broken; fell off truck.
157	30	Stan. Riegel,	Cameron,	Miner,	Injured seriously by falling down breast.
158	Dec. 6	John H. Kelley,	Short Mountain,	Miner,	Leg broken by a fall of coal.
159	6	James Moran,	Preston, No. 8,	Switch-boy,	Back and head injured; fell under mine cars.
160	12	Anthony Roshinskie,	Reliance,	Miner,	Back and head injured by a fall of coal and slate.
161	13	Elias Noll,	Cameron,	Miner,	Burned on hands, face, and neck by CH. gas.
162	13	William Reinhart,	Mt. Carmel,	Miner,	Foot and ankle hurt by coal rolling on it.
163	14	Daniel Everitt,	Mt. Carmel,	Miner,	Small bone of left arm broken.
164	15	Percival Boardman,	Cameron,	Miner,	Injured about body; fell down breast.
165	18	Frank Shoener,	Mt. Carmel,	Miner,	Leg broken; piece of coal rolled on it.
166	19	Lawrence Cotner,	Morris Ridge,	Miner,	Injured by fall of a piece of coal.
167	19	James Cunippe,	Locust Gap,	Miner,	Leg bruised by a fall of top coal.
168	28	William Lauer,	Keystone,	Laborer,	Arm broken; attempted to jump on car and slipped and fell on a rock.
169	29	Christian Callery,	Big Mine Run,	Miner,	Leg broken by fall of a piece of coal.
170	31	Joel Stahl,	Bear Valley,	Loader,	Arm injured and ribs broken; caught between mine cars.

COMPARATIVE STATEMENT OF CASUALTIES, TONNAGE, AND EMPLOYEES FOR FOUR YEARS IN THE THIRD OR SHAMOKIN DIVISION OF MINING DISTRICT OF SCHUYLKILL.

Years.	Casualties—killed.	Casualties—injured.	Total.	Total number of employees.	Number of employees to each casualty.	Total number of tons of coal mined	Number of tons of coal mined to each fatal casualty.	Number of tons of coal mined to each non-fatal casualty.	Ratio tons of coal mined to each casualty.	Number of tons of coal to each employee.
1880,	34	124	158	11,616	73.5	3 461 371 18	101 865.01	27,914.06	21,907.08	211.18
1881,	48	147	195	11,865	60 8	4,432 601 13	92 346.00	30,154.00	22,731 00	373.00
1882,	44	182	226	12,973	57.4	4 588.799.04	104,290.00	25 213.00	20 304.00	353.00
1883,	64	170	234	14 588	62 4	4 813 162 12	75 205.14	28,312 15	20 141.14	329.18
Total,	190	623	813	. .	. . .	17 295.935 07				
Average,	47½	155¾	203½	12 760	66 0	4 323,983.17	93,411.11	27 896.00	21,271.00	316.19

NUMBER OF EMPLOYEES, COAL MINED, DAYS WORKED, &c., FOR THE YEAR ENDING DECEMBER 31, 1883, SHAMOKIN DIVISION.

COLLIERIES.	Operators.	Number of tons of coal shipped.	NUMBER OF EMPLOYEES.			Number of days worked by breaker	Number of kegs of powder used.	Number of horses and mules.
			Inside.	Outside.	Total.			
North Franklin, No. 1.	Philadelphia and Reading Coal and Iron Company,	20,195.16	39	59	98	145.75	650	17
North Franklin, No. 2,	do. do.	80 722.04	111	116	227	237.75	2,115	32
Bear Valley,	do. do.	32 056.07	106	120	226	110.75	825	23
Burnside,	do. do.	58,560.07	184	122	306	233	1,975	35
Locust Gap,	do. do.	58,646 03	155	120	275	225	2,050	33
Reliance.	do. do.	104,262.19	144	123	267	237.25	2,886	35
Mt. Carmel Shaft,	do. do.	186,881.16	306	182	487	235	4 900	65
Locust Spring,	do. do.	100,536.06	217	111	328	219 25	2 850	36
Merriam,	do. do.	92,026.12	187	121	308	227.50	1,825	38
Potts,	do. do.	49 004.07	62	94	156	180	300	30
Keystone,	do. do.	26,025.18	105	135	240	147	225	16
Tunnel,	do. do.	86 545.10	122	143	265	214 75	225	27
Bast,	do. do.	112 875.13	154	161	315	233.50	1 815	36
North Ashland,	do. do.	122,480 04	126	144	270	235.75	1,925	40
Preston, Nos. 1 and 2,	do. do.	84.914.08	112	151	263	225 25	380	43
Preston, No. 3.	do. do.	86 545.10	140	135	275	227 50	560	43
West Brookside,	do. do.	351 971.06	530	214	744	243 75	5,700	125
Peerless,	do. do.	22.155.07	98	89	187	130	600	16
	Cruikshank & Ames.	28 212 17						
Buck Ridge,	Philadelphia and Reading Coal and Iron Company,	5.712.04	55	56	111	126 50	175	18
	May, Audenried & Co.,	11,162.09						
Cameron,	Mineral Railroad and Mining Company,	181,279.11	443	230	694	289.60	6.094	69
Luke Fidler,	do. do.	121,502.10	223	142	365	276 85	3 073	46
Pennsylvania,	do. do.	118 733.14	317	200	517	279 20	4,228	59
Hickory Ridge,	do. do.	26,395 03	68	59	127	252.10		18
Hickory Swamp,	do. do.	5,800.05	98	144	242	69.10	211	22
Short Mountain,	Lykens Valley Coal Company,	201,632.16	534	323	857	292	2,645	188
Williamstown,	Summit Branch Coal Company,	334,866.07	671	248	919	303.50	9,128	147
Big Mountain,	Patterson & Llewellyn,	178 894 17	400	150	550	271		
Ben Franklin,	Douty & Baumgardner,	34 220.01	43	52	95	252.25	300	20
Black Diamond,	Schwenk, Robinson & Co.,	32,330.00	55	49	104	260	1,015	4

Big Mine Run,	Jeremiah Taylor & Co.,	131,572.03	217	159	376	245.75	2,587	40
Big Run Gap,	James Fennel,	2 365.00	11	6	17	211	80	6
Bellmore,	S. S. Bicked & Co.,	52.601.06	111	132	243	206	770	20
Bear City,	John Q. Williams,	2,860.00	4	6	10	138	50	2
Centralia,	Lewis A. Riley & Co.,	125,438.11	170	181	351	237.75	3.659	35
Continental,	Lehigh Valley Coal Company,	63.831.01	104	137	241	219.75	1.296	
Monroe,	Montana Coal Company,	9,990.00	62	68	130	74.50	152	13
Excelsior,	Excelsior Coal Company,	138 429.15	207	112	319			
Enterprise,	Enterprise Coal Company,	117 592.18	279	100	379	268.50	456	35
Gordon,	William Cleaver,	2.061.04	18	19	37	32.50	42	7
Greenback,	H. J. Tondy & Co.,	66 780 10	140	62	202	303	1,983	20
Henry Clay, No. 1,	J. Langdon & Co.,	82,283.14	203	92	295	285	1.432	32
Lancaster,	Smith & Keiser,	21 863 07	43	28	71	246	786	11
Logan,	Lewis A. Riley & Co.,	225.614.15	326	257	583	240 25	5,974	45
Monitor,	George W. Johns & Bro.,	145,295.09	215	127	342	275 25	2 245	45
Mt. Carmel,	Montelius, Righter & Co.,	162,649 12	252	140	392	251.10	4,073	35
Morris Ridge,	Isaac May & Co.,	79,080.09	98	107	205	260	1,759	13
Royal Oak,	Tillett & Sons,	4.696.18	13	5	18	184	123	4
Ransch Gap,	Israel Nye,	1,353.15	4	3	7		154	1
Stirling,	Kendrick & Co.,	111,264.14	235	108	343	249.50	2,373	26
Vaughan,	D. Vaughan,	871.00	3	3	6	210	15	1
Hazle Dell,	Lewis A. Riley & Co.,		62	16	78		585	13
Star, (late Carson,)	Charles Hutchinson,	4 603.00	57	83	140	50	1,000	14
McAuley,	Allen Mann,	639.00	3	3	6		25	1
		4 540.917.08	8,642	5,946	14,588	*208½	93,294	1,749
		272 245.04						
		4,813,162.12						

* Average.

NAMES OF COLLIERIES in operation and Coal mined in Third or Shamokin Division of the Mining District of Schuylkill, for the years 1880, 1881, 1882, and 1883.

COLLIERIES.	Location.	Operators.	1880.	1881.	1882.	1883.
North Franklin, No. 1,	Trevorton, Northumberland county,	Philadelphia and Reading Coal and Iron Co.,	63,180 05	93,310.10	86,382.11	20,195.16
North Franklin, No. 2,	do. do.	do. do.				80 722.04
Bear Valley,	Shamokin, Northumberland county,	do. do.	53,300.07	73,174.13	69 634 08	32 056 07
Burnside,	Carbon Run, Northumberland county,	do. do.	45,758 09	50 918 15	68,048.02	58,560.07
Locust Gap,	Locust Gap, Northumberland county,	do. do.	92,401.18	86 000.00	71 204.15	58 646.03
Reliance,	Mt. Carmel, Northumberland county,	do. do.	81,634.07	104 964.12	118,840.16	104,262.19
Mt. Carmel Shaft,	Alaska Station, Northumberland county,	do. do.	142,999.12	184 358 05	182,139.07	186,881.16
Locust Spring,	Locust Gap, Northumberland county,	do. do.	94,143.07	90 508.03	95,447.17	100,536.06
Merriam,	Locust Summit,	do. do.	83 098.12	92 589.13	116 771.16	92 026.12
Potts,	Locust Dale,	do. do.	77 623.03	96 240.11	83,941.05	49.004.07
Keystone,	do.	do. do.	2,730.10	7.726.17	2 709 06	26,025.18
Tunnel,	Ashland, Schuylkill county,	do. do.	7.10	17 404 03	49 094.17	86 545.10
Bast,	Big Mine Run, Northumberland county,	do. do.	102,089 13	91 785 04	90.160 18	112,875.13
North Ashland,	Dark Corner, Columbia county,	do. do.	99.048.15	119.300.08	111 035.16	122,480.04
Preston, Nos. 1 and 2,	Girardville,	do. do.	41 437.07	63.491.14	68 028 15	84,914.08
Preston, No. 3,	do.	do. do.	79 356 16	88 576.02	86.078.18	86,545.10
West Brookside,	Tower City,	do. do.	308,616 04	374 533.00	239,892.02	351,971.06
Peerless,	Shamokin,	do. do.				22,155.07
Do.	do.	Cruikshank & Co.,	29,231.11	46 016.03	47,324.18	28 212.17
Buck Ridge,	do.	Philadelphia and Reading Coal and Iron Co.,				5,712.04
Do.	do.	May, Audenried & Co.,	53 763.05	30.015 06	66,555.03	11,162.09
Cameron,	do.	Mineral Railroad and Mining Company,	160,853.13	175.655.16	164.596.11	181,279.11
Luke Fiddler,	do.	do. do.	118 643.03	140,291.06	124,973.15	121.502.10
Pennsylvania,	Green Ridge Northumberland county,	do. do.	105,882 13	118,837.00	125,167.01	118,733 14
Hickory Ridge,	Hickory Ridge, Northumberland county,	do. do.		23 311.06	23,640 16	26 395.03
Hickory Swamp,		do. do.				5,800.05
Short Mountain,	Wiconisco, Dauphin county,	Lykens Valley Coal Company,	171 417.05	198 188.17	195.095.10	201.632.16
Williamstown,	Williamstown, Dauphin county,	Summit Branch Coal Company,	227,169.06	279 790 01	342.218 09	364 836.07
Big Mountain,	Shamokin, Northumberland county,	Patterson & Llewellyn,	137,442.11	178 959.06	168,769.15	178 894 17
Ben Franklin,	Doutyville, Northumberland county,	Douty & Baumgardner,	38 411.16	32,158.06	31.006.16	34 220 01
Black Diamond,	Mt. Carmel, Northumberland county,	Schwenk, Robinson & Co.,	26,125.15	7,368.19	21,329.11	32 330.00
Big Mine Run,	Big Mine Run, Northumberland county,	Jeremiah Taylor & Co.,	111,683.12	134 525.01	132,362.11	131 572 03
Big Run Gap,	Williams Valley, Dauphin county,	James Fennel,	2,568 00	2 628.00	2,498 00	2,365.00
Bellmore,	Mt. Carmel,	S. S. Bickel & Co.,			6,805 07	52 601.06
Bear City,		John Q. Williams,	413.00	2 450.00	2,000.00	2 860 00
Centralia,	Centralia, Columbia county,	Lewis A. Riley & Co.,		10 662.01	88,283 00	125 438 11
Continental,	do. do.	Lehigh Valley Coal Company,	79 598 00	62 506.06	16 541.17	63 831.01
Carson,	Shamokin, Northumberland county,	M. E. Robinson,	11,460.02	14.466.02	8 070.04	
Excelsior,	Excelsior, Northumberland county,	Excelsior Coal Company,	104,308.09	142.481.11	125,464.14	138,429.15
Enterprise,	Enterprise, Northumberland county,	Enterprise Coal Company,	79,017.08	141 820.11	127 019.17	117,592.18
Gordon,	Mahanoy Valley, Northumberland county,	William Cleaver,				2,061.04
Greenback,	Greenback, Northumberland county,	H. J. Toudy & Co.,	25 885.03	30 358.08	42,514.15	66,780.10
Henry Clay, No. 1,	Shamokin, Northumberland county,	J. Langdon & Co.,	109,691.03	114 935.03	91,674 18	82,283.14
Lancaster,	Coal Run, Northumberland county,	Smith & Keiser,				21,893.07

Logan,	Centralia, Columbia county,	Lewis A. Riley & Co.,			231,169.00	225 614.15
Monitor,	Locust Gap, Northumberland county,	George W. Johns & Co.,	119,942.13	126,062.09	131,548.11	145,295.09
Mt. Carmel,	Mt. Carmel, Northumberland county,	Montellus. Righter & Co.,	53,000.00	135 612.14	179 642.18	162,649.12
Morris Ridge,	Conyngham township, Columbia county,	Isaac May & Co.,		45 507.03	55 490.66	79.080.09
Royal Oak,	Shamokin, Northumberland county,	Tillet & Bro.,	2,197.01	4.806 00	3,850 00	4 696.18
Rausch Gap,	Valley View, Schuylkill county,	Israel Nye,	896 17	11.195.00	1.088.04	1,353.15
Sterling,	Carbon Run, Northumberland county,	Kendrick & Co.,	80 930.15	95,036.18	99 389 18	111 264.14
Vaughan,	Ashland,	D. Vaughan,	2 373.00			871 00
Hazle Dell,	Centralia, Columbia county,	Sykes & Jones,	16 270.06	29 000.00	7.368.01	*
Glen City,	Glen City, Columbia county,	J. H. Losee,	11,128.18			
Montana, No. 2,	Montana, Columbia county,	A. H. Church,	11.276.19	42,941 06	35 884 01	
Franklin, No. 2,	Barry township, Schuylkill county,	William Cleaver & Co.,	8 966.00	29,917.19	23 368.10	
Pioneer,		D. Vaughan & Co.,	2 373.00	958 00	440.00	
Shamokin,		G. Tibbetts & Co.,	2 197.01			
Montana, No. 1,	Centralia, Columbia county,	D. Beaver,	330 07	73 10		
Big Mountain, No. 2,	Mt. Carmel, Nortumberland county,	Northumberland Coal Company,	200.00			
No Name,		Samuel Myers,	70.00			
Ashland Estate,	Ashland,	Alfred Bancroft,	24.10			
Monroe,	Montana, Columbia county,	Montana Coal Company,	.....	.....	.....	9.990 00
Star,	Shamokin, Northumberland county,	Charles Hutchinson,	.....	.....	.....	4.603.00
McAuley,	Beaver township, Columbia county,	Allen Mann,				639 00
Total shipped to market,			3 285 216.15	4 181 696.17	4.329.054.00	4 440 917.08
Consumed or sold at collieries,			176,155 03	250,904.16	259 745 04	272.245 04
Total production,			3 461,371.18	4 432,601.13	4 588,799.04	4 813,162.12

* See Centralia colliery.

LUZERNE AND CARBON COUNTIES.

MIDDLE DISTRICT.

OFFICE OF INSPECTOR OF MINES,
WILKES-BARRE, PA., *April 4, 1884.*

To His Excellency ROBERT E. PATTISON,
Governor of Pennsylvania:

SIR: I herewith have the honor of presenting my fourth annual report, in accordance with the act entitled "An act to provide for the health and safety of persons employed in coal mines," which contains a list of the persons injured and killed for the year 1883. Also, tables giving the number of persons employed, amount of coal mined, number of days in operation, and other important information relative to the industry of coal mining in this district.

The total amount of coal mined was 7,667,221 tons, including coal shipped to market, coal sold for home consumption in the immediate vicinity of the mines, and coal used for generating steam at collieries not using culm. The increase over the production of 1882 was 610,863 tons.

The total number of persons employed in and around the mines was 21,475, showing an increase of 3,136 to the number of persons employed in the year 1882.

The total number of serious accidents was two hundred and eighty-five, out of which eighty-nine proved fatal, leaving thirty-six widows and ninety-five orphans. Twelve of the fatal accidents occurred in new shafts not producing coal, and the great danger of sinking new shafts has added materially to the list of fatal casualties during the year 1883.

Six new collieries were added to the list of shipping collieries in this district during 1883, and at least three more will be added in the year 1884 which increases the producing capacity very largely.

Several topics of interest to mining operators are commented upon in this report, and a brief description of all the fatal accidents is given, from perusing which some valuable lessons may be learned regarding the manner in which mining accidents occur, and the best way to avoid them.

This I have the honor to submit.

Very respectfully,

GWILYM M. WILLIAMS,
Inspector of Coal Mines.

Total Amount of Coal Mined during the Year 1883.

Lehigh Valley Coal Company,	646,760.15
Lehigh and Wilkes-Barre Coal Company,	1,751,167.35
Delaware and Hudson Canal Company,	1,357,810.55
Susquehanna Coal Company,	1,119,320.65
Wyoming Valley Coal Company,	445,496.00
Miscellaneous coal companies,	2,346,666.60
Total of all coal companies,	7,667,221.30

Number of Fatal Accidents and Amount of Coal Produced per Life Lost.

NAMES OF THE COMPANIES.	Number of fatal accidents.	Coal mined per life lost—tons.
Lehigh Valley Coal Company,	9	71,862.23
Lehigh and Wilkes-Barre Coal Company,	11	159,197.03
Delaware and Hudson Canal Company,	10	135,781.05
Susquehanna Coal Company,	12	93,276.72
Wyoming Valley Coal Company,	6	74,249.33
Miscellaneous coal companies,	32	73,333.33
New collieries not yet producing coal,	9	
Total of all coal companies,	89	86,148.55

Number of Employees and Tons of Coal Mined per Person Employed.

NAMES OF THE COMPANIES.	Number of persons employed.	Coal mined per employè—tons.
Lehigh Valley Coal Company,	1,672	386.81
Lehigh and Wilkes-Barre Coal Company,	5,254	333.30
Delaware and Hudson Canal Company,	3,506	387.28
Susquehanna Coal Company,	2,876	389.19
Wyoming Valley Coal Company,	1,275	349.40
Miscellaneous coal companies,	6,394	367.01
Total all coal companies,	20,977	365.60

There were an average of four hundred and ninety-eight persons employed in new shafts, which have not been included in the above number; adding which would aggregate a total of twenty-one thousand four hundred and seventy-five persons employed, all told, being three thousand one hundred and thirty-six more than the number employed in 1882.

Average Number of Days Worked and Tons of Coal Mined per Day.

Names of the Companies.	Average days in operation.	Tons of coal mined per day.
Lehigh Valley Coal Company,	227.30	2,845.44
Lehigh and Wilkes-Barre Coal Company,	184.34	9,499.70
Delaware and Hudson Canal Company,	212.34	6,394.52
Susquehanna Coal Company,	288.47	3,880.13
Wyoming Valley Coal Company,	224.43	1,985.02
Miscellaneous coal companies,	205.27	11,432.09
All coal companies,	223.69	34,276.10

Classification of Fatal and Non-Fatal Accidents for 1883.

Causes of Accident.	Number killed.	Number seriously injured.
By explosions of gas,	7	30
By falls of roof and coal,	25	64
By falling down shafts,	12	
By cars underground,	15	50
By explosions of powder and blasts,	14	16
Miscellaneous causes—inside,	6	20
Miscellaneous causes—outside,	10	16
Totals,	89	196

Number of widows, thirty-six; orphans, ninety-five.

TABLE NO. 1.—*Showing the number of each class of employés, number seriously and fatally injured, per centum of each class injured and killed, and per centum of each class either injured or killed during 1883.*

	Persons Employed Inside of the Mines.						Persons Employed Outside of the Mines.						
	Bosses.	Miners.	Laborers.	All classes of company men.	Drivers and runners.	Door-boys.	Bosses.	Mechanics.	Head and platemen.	All company men.	Drivers and runners.	Slate-pickers.	Sinkers and laborers in new shafts.
Number of each class of employés, ...	77	4,890	4,160	1,812	1,951	910	63	488	568	1,824	265	3,969	498
Number seriously injured, ...	1	80	45	13	28	9	. . . .	1	2	5	4	4	4
Number fatally injured, ...	. . . .	30	12	6	13	8	1	2	. . . .	5	1	2	9
Per centum injured, ...	1.30	1.63	1.08	0.71	1.43	0.98	None.	0.20	0.35	0.27	1.50	0.10	0.80
Per centum killed, ...	None.	0.66	0.28	0.33	0.66	0.87	1.58	0.40	None.	0.27	0.37	0.05	1.80
Per cent. either injured or killed, ...	1.30	2.24	1.37	1.04	2.10	1.86	1.58	0.61	0.35	0.54	1.88	0.15	2.61

TABLE NO. 2.—*Showing tons of coal mined, number of persons employed, number of days worked by breakers, number of lives lost, and tons of coal mined per life lost, for each year from 1871 to 1883, included.*

YEARS.	Tons of coal mined each year.	Average number of persons employed.	Average number of days in operation.	CLASSIFICATION OF FATAL ACCIDENTS UNDERGROUND.						On surface.	Total lives lost.	Tons of coal mined per life lost.
				Explosions of C H⁴ gas.	Falling of roof and coal.	Falling down shafts.	Crushed by mine cars.	Explosions of powder and blasts.	Miscellaneous causes.			
1871,	3,000,000	9,870	. . . . .	1	13	2	6	1	24	6	53	56,000
1872,	3,250,000	9,807	. . . . .	8	15	3	7	. . .	4	3	40	81,560
1873,	4,232,000	11,325	. . . . .	6	11	3	13	4	. . .	9	46	92,000
1874,	4,513,847	13,576	. . . . .	9	17	3	9	5	7	7	57	80,000
1875,	4,261,263	15,008	. . . . .	6	19	14	5	10	1	8	63	67,629
1876,	4,615,386	14,317	. . . . .	7	23	1	4	13	4	3	55	83,916
1877,	4,080,377	14,073	. . . . .	1	25	2	1	4	3	2	38	107,377
1878,	4,082,372	13,045	. . . . .	7	14	. . .	5	4	3	3	36	113,399
1879,	6,310,256	15,582	. . . . .	12	30	. . .	15	5	1	2	65	97,080
1880,	5,708,813	15,987	187.43	8	11	4	12	2	7	7	51	111,937
1881,	7,021,508	16,808	221.58	10	28	3	10	7	3	18	79	88,879
1882,	7,059,358	18,339	228.07	10	22	4	16	8	8	5	73	96,703
1883,	7,667,221	21,475	223.69	7	25	12	15	14	6	10	89	86,148
Totals,	65,802,401	14,554	. . . . .	92	253	51	118	77	71	83	745	88,325

The General Condition of the Mines.

During the year 1883, several new collieries began to operate in this district, swelling the list to an appreciable degree, and increasing the inspection work in the same proportion. The Clear Spring colliery began to send coal through the breaker January 3; the Alden colliery began January 18; the Hanover March 10; the Fuller colliery the last week in August; the Schooley breaker started September 3, and the Hillman vein breaker September 28. Beside these, the new breaker at the Lance colliery started to ship coal June 30, and the new breaker at the Stanton mine September 1. Thus eight new breakers are added to the list of this district for 1883. These new collieries are all equipped with the latest improved colliery-plant, and each is starting the operation of mining in good condition.

The ventilation of the Lance, Stanton, and Fuller collieries is largely in excess of the need of the present workings, and evidently it will continue so for some time. The ventilating systems of the other new collieries have not been completely established yet, but I expect it will be efficient when the contemplated work is accomplished.

In the old collieries, the good condition reported last year is generally maintained. A few instances exist where there is sufficient ground to complain, but even in these a slow progress is being made, and I am promised that a more satisfactory condition will soon be effected.

With the large amount of coal mined at present, the workings underground spread out rapidly, requiring extraordinary care in the manipulation of the air-currents to supply an efficient quantity of ventilation at the face of the workings. This is done remarkably well, considering the difficulties of the work.

Some difficulty is experienced in maintaining an effective discipline, from which laxity accidents frequently arise, causing injuries to the workingmen which might easily be avoided provided the discipline was more effective.

Events Causing Fire-Damp to Accumulate in Collieries.

Great danger exists when a large body of fire-damp accumulates in a coal-mine, and this danger had to be contended with at three of the collieries of this district for several months in 1883. During the first part of January the pillars of a large extent of workings in the Baltimore slope were crushing and showing the usual signs of an approaching cave, and about five o'clock, A. M., January 25, the expected cave transpired, breaking the strata clear through to the surface, and damaging a number of houses. While the pillars were being crushed, all the hitherto occluded gases were suddenly relieved and evolved into the cavities of the mine, causing the atmosphere of a large area of workings to become explosive. At the same time, from the same cause, the second opening of the Conyngham shaft was deranged and made for a while unavailable as an escapage for the latter colliery's workmen in case of emergency. The ventilation of this mine was also affected, so that a large section of the workings became

full of fire-damp, and it was explosive. Through the extraordinary care of the managers and workingmen employed to remove the danger no accident occurred, and the usual safe condition of the mines was finally restored.

On the 27th day of June, again, the Baltimore and Conyngham mines experienced another trouble which complicated the condition of both to a certain extent. During an unsually heavy rain storm a dam located on surface above the Baltimore mines gave way, and the water broke into the workings through an old cave-hole near the outcrop of the seam. A large stream of water poured into the mine for nearly two days, carrying with it thousands of tons of mud, stone, and sand. Two small houses were also washed in, with all they contained, the inhabitants barely escaping. The water was finally stopped by throwing large trees, stones, and bales of hay into the hole. Fortunately this happened early in the morning, when only a few persons happened to be in the mines, and they all escaped without injury. The lowest point in the workings was at the bottom of the Conyngham shaft, and the water filled this shaft to a height of three hundred and forty feet. The mud and débris of all descriptions filled the airways and gang-ways of the Baltimore slope above the level of the water, and prevented the air from traveling its usual courses; consequently all the workings accumulated fire-damp. The cars and roads were torn up and washed down by the rushing streams of water to a heap of rubbage at the lowest points in the workings, making the work of restoring order very tedious, expensive, and dangerous.

By the end of the year, through strenuous efforts, nearly all the useful passages were cleaned out, and the ventilation circulated so as to clear out the fire-damp. But the second opening of the Conyngham was permanently destroyed, and a new one had to be effected through solid coal to another point in the Baltimore slope workings. This work is in progress, but is not yet completed, and evidently two or three months will elapse before it can be effected. Much praise is due to the bosses of these mines and to the workingmen for the care and intelligence exercised in the trying, dangerous situations encountered while restoring order in these mines and removing the dangerous gases. During a year of extraordinary dangers, no accidents occurred to any of the persons employed at this perilous work.

During the latter part of March the workings of the old slope of Franklin mines caved and filled with fire-damp, and they have not been able to mine much coal from there since. The sump-pillar in the upper lift was somewhat damaged by the crush, letting the water run to the lowest lift, beyond reach of the pumps; but they have succeeded in removing both water and some of the fire-damp, and they are now at work re-opening the lowest lift, where nearly all the unmined coal is left, and from which it can again be mined. By exercising care and watchfulness, they succeeded in accomplishing the work without any accidents to the workingmen, and they are at present comparatively past their peril.

During the latter part of August the whole extent of workings on the west side of the underground slope in the Pine Ridge shaft crushed and closed in, but the ventilation was maintained so that they experienced no trouble with the emitted gases, although an enormous quantity was evolved from the crushed pillars.

On the morning of December 10, when the fire-boss of this mine was starting on his morning examination of the west side workings, he was surprised to find the mine filled with fire-damp to a point within about three hundred feet of the bottom of the shaft. Fortunately he was a careful officer, complying strictly with the good rule of carrying no light but that of a safety-lamp, while making his examination of the mine; and with his safety-lamp he discovered the dangerous element promptly upon entering the explosive atmosphere without causing an explosion, thus saving his life and the lives of the persons who were exploring other sections of the mine at the same time. If this man had carelessly taken with him a naked lamp and inadvertently exploded the gas, the result would have been terrible, the men would certainly have been killed, and the mine perhaps com pletely ruined.

These incidents direct our attention to the possibilities of extensive explosions in this district, and it behooves all persons connected with the mines to profit by them and be careful under similar circumstances at every colliery. When pillars are crushing unusual care should be exercised, no curiosity-seeking persons allowed around, and no naked light permitted to persons whose presence may be required.

The incident at Pine Ridge shows how important it is for fire-bosses to carry no naked light along while examining the mines after a cessation of work. No one can predict what may happen in a night, and the only safe method of procedure is to permit no light but the light of a safety-lamp to enter a mine until its condition is fully ascertained.

Fire in the Stanton Air-Shaft.

This shaft was connected with the Stanton mine-workings on April 18, 1883, by a heading driven at right angles from one of the main gangways. A thirty-five feet fan was already planted at the top, and a gang of men, under the charge of John Wasley, who had sunk the shaft, was engaged to line the air-shaft with match boards, and make the upcast compartment air-tight. On the 4th day of May, they had done this work from the bottom of the shaft up to a point nearly midway between the Baltimore and Hillman seams, where a small vein of coal was found. This vein of coal evolved a large volume of fire-damp, and lest the blowers should take fire, the men were instructed by the superintendent to use no naked lights anywhere in the shaft. Notwithstanding this, owing to the intricacy of the work, they appear to have disregarded this instruction and used open lamps, and during a severe thunder storm early in the evening, the blowers ig nited and burned briskly behind the casing around the shaft, and set it on

fire. Some said that a flash of lightning ignited the gas, but the men themselves said that they believe it ignited from their lamps. The men instantly came out of the shaft, and a short time after, when two of them were on the bucket about to descend again, an explosion occurred blowing the bucket and cover of fan-drift up in the air, the latter falling on the washing shanty and completely crushing it. The men fortunately escaped with only slight injuries. At first it was feared that the explosion had extended into the Stanton workings, but upon examination of the mine everything was found in its usual order. Owing to the thick smoke ascending the shaft, the air-current was reversed and the smoke was driven down and out through the Stanton gangway to the old fan, and after laying pipe to conduct a sufficient supply of water, the fire was successfully extinguished on May 9. Although it was a difficult place to fight a fire, it was done with careful, prudent steps, and they succeeded in extinguishing it without an accident to any of the men employed at the work. The casing was finally completed, and the fan is since ventilating a part of the Stanton workings. The colliery is now in excellent shape, having large roomy airways and gangways, excellent ventilation, and a large margin of ventilating power to meet future requirements.

Opinion and Decision of the Supreme Court.

An appeal was made from the decision of the court of common pleas of Luzerne county to the Supreme Court of Pennsylvania, in the case of Commonwealth *ex rel.* Williams, mine inspector, *vs.* Haddock *et al.* See opinion of Court below in mine inspectors' report for 1881. I regret to state that the decision of the Court below was reversed, for reasons set forth in the following opinion:

Mine Ventilation Law—New Workings.

1. The defendants were owners of a coal mine operated through a shaft, and it was alleged, and not denied, that they permitted men to work in the first and third seams (which were connected with a second opening) at the same time that other employés, not exceeding twenty in number, were at work in the fifth seam of coal "for the purpose of working a gangway to connect with a second opening not yet completed to said seam." Held,—

(*a.*) That this was not in violation of section three of the act of March 3, 1870, (P. L., 3.)

(*b.*) That the phrase, "for the time being at work," is clearly used to qualify and limit the seams or strata which are embraced in the prohibition of the third section of the act, and not the period of time, daily or otherwise, when the laborers are actually employed.

(*c.*) That removing coal from a gangway, not for the coal, but for the purpose of driving the gangway so as to connect the same with a second opening, is not working the seam, but opening it for work. Such work does not make it a seam "for the time being at work" within the meaning of section three of the act.

2. Commonwealth *vs.* Haddock, (10 Luz. Reg., 81,) reversed.

Appeal from the court of common pleas of Luzerne county.

[For opinion of Court below, see 10 Luz. Reg., 81.]

The opinion of the Court was delivered October 1, 1883, by

CLARK, J. This case involves the proper construction of the third section of the act of March 3, 1870, entitled "An act providing for the health and safety of persons employed in coal mines." P. L., 3.

The fifth section of the act referred to provides that the proper court, on the application of the inspector of mines, "acting in the behalf of the Commonwealth, shall prohibit, by injunction or otherwise, the working of any mine, in which any person is employed in working, or is permitted to be for the purpose of working, in contravention of this act."

This bill is preferred in the name of the Commonwealth, upon the relation of G. M. Williams, who is the inspector of mines for the Middle district of Luzerne and Carbon counties; the defendants are owners and operators of an anthracite coal mine, known as "Dodson shaft," in Plymouth township, in Luzerne county, in the said district.

The question arises upon the defendants' demurrer to the bill. The effect of the demurrer is to admit all the material allegations of the bill, and the inquiry presented in the issue thus formed is, whether, under the showing of the bill, upon a proper construction of the third section of the act of March 3, 1870, the plaintiff is entitled to the relief prayed for.

This act of Assembly was passed after the sad and memorable disaster which occurred at the Avondale mine on the 6th day of September, 1869. That mine had but a single shaft—the hoisting shaft. The brattice inclosing the air passage caught fire from some cause unknown, and very soon the only entrance to, or means of exit from, the mine was filled with burning timber, fire, and smoke. The breaker and building covering the shaft were entirely consumed, and one hundred and eight unfortunate miners instantly perished. The great public calamity, and the investigation which followed, revealed the fact that the business of mining was so negligently conducted that the lives of miners were constantly imperiled. Public sentiment demanded that this should be the subject of legislative provision, and this statute embodies the action of the Legislature thereon.

The third section comprises all the provisions of the act covering the question at issue, and is in the words and forms following, viz;

"SEC. 3. That four months from and after the passage of this act, it shall not be lawful for the owner or agent of any anthracite coal mine or colliery, worked by or through a shaft or slope, to employ any person in working in such coal mine or colliery, or to permit any person to be in such coal mine or colliery for the purpose of working therein, unless there are in communication with every seam or stratum of coal worked in such coal mine or colliery, for the time being at work, at least two shafts, or slopes, or outlets, separated by natural strata of not less than one hundred and fifty feet in breadth, by which shafts, slopes, or outlets distinct means of ingress and egress are always available to the persons employed in the coal mine or colliery, but it shall not be necessary for the two shafts or outlets to belong to the same coal mine or colliery, if the persons therein employed have ready and available means of ingress and egress by not less

than two shafts, slopes, or outlets, one or more of which may belong to another coal mine or colliery, provided that a second opening can be had through coal, but if a tunnel or shaft will be required for the additional opening, work upon the same shall commence immediately after the passage of this act, and continue until its final completion, with not less than three shifts in each twenty-four hours, and as many hands be employed as can be put to work with advantage, the inspector to be the judge as to the least number of hands engaged per shift. This section shall not apply to opening a new coal mine or colliery, nor to any working for the purpose of making a communication between two or more shafts, slopes, or outlets, so long as not more than twenty persons are employed at any one time in the said mine or working."

The defendants operated this mine through a shaft, extending from the surface through the various seams of coal. The shaft was surmounted by the coal-breaker, a large wooden building used for hoisting coal and preparing it for market. There were five seams or strata of coal. In the first and third seams the defendants employed fifty or more persons in the mining of coal for market. The second and fourth seams were not being worked. Whether they were yet unopened, or had been abandoned and exhausted, does not appear. In the fifth seam a number of persons, not exceeding twenty, were employed in working a gangway, or gangways, to connect with a second opening, which had not yet been completed to that seam or stratum.

The second opening was in communication with the first and third seams, but not with the fifth. It had not yet been completed to that point, and the working in the fifth seam was admittedly for the purpose of making that connection. There was no hoisting apparatus in this second opening. A ladder extended from the coal working in the third seam to the surface. Over it was a suction fan, and this fan being kept constantly in motion, the foul air of the mine was thus removed, and pure air admitted to take its place through brattice of wood in the main shaft. There were, therefore, in the event of an accident in the mine, in communication with the first and third seams two outlets, or distinct means of escape, as required by law—one by the "cages" up the main shaft, the other by the ladder in the air-shaft; but there was no outlet or means of communication with the fifth seam except the main shaft; nor could there be until the gangway at which the twenty men were engaged was completed to the point of connection.

It is not contended that the working in the fifth seam, with a single means of escape, for the purpose for which it was prosecuted, was unlawful *per se*, but that the operating of the first and third seams simultaneously with the driving of the gangway was in contravention of the statute. In other words, that the workings of the first and third seams, and the opening at the same time of the fifth, which had but one outlet, is exactly within the letter of the prohibition, whilst the proviso simply withdraws from the operation of that prohibition the opening of a new mine, or the driving of

a gangway—that and no more. The prohibition arises, they say, not from the fact that there is another partially opened seam connected with the same shaft which has no second outlet, but the fact that there is another such seam, in the language of the statute, "for the time being at work." The reasoning in support of this view certainly displays great ingenuity of counsel, but it involves such a refinement upon the language of the section as, we think, was not in the minds of the Legislature. The natural and obvious meaning of the words used in the entire section, we think, is to be taken, rather than such as only results from a subtle and adroit analysis of the prohibition and the proviso considered separately. To find the intention of the Legislature we must read the different parts of a statute together, and if there is a simple and apparent meaning in the whole, which stands out in bold relief, we must adopt that, rather than one which is forced and laborious reasoning. The phrase, "for the time being at work," is clearly used to qualify and limit the seams or strata which are embraced in the prohibition, and not the period of time, daily or otherwise, when the laborers are actually employed. The fifth seam was simply in course of preparation for working. Whilst, it is true, a limited number of men were working there, it could scarcely be said they were working the mine. They were removing the coal from the gangways, not for the coal, but for the gangway. They were not working the seam, they were opening it for work.

We cannot believe that the prohibitory clause, if construed alone, would apply to the opening of a new coal mine, as it would, of course, be an utter impossibility, in sinking the first shaft, to have distinct means of ingress and egress by two shafts, and there would be a like impossibility of distinct means of egress, in the case of making a first communication between two or more shafts. The proviso was altogether unnecessary, indeed absurd, if its purpose was merely to except such acts from its provisions. This proviso was doubtless framed in part to exclude any possible ground of misinterpretation, and further, but principally, we think, to limit the employment in this more dangerous department of the work to twenty men, as without the proviso there was necessarily no limit. The objects and purpose of the act are thus extended by the proviso.

If, as the act provides, this section does "not apply to any working for the purpose of making a communication between two or more shafts," how can it apply here? That was the exact purpose and character of the work in the fifth seam. The language is specific, plain, and clear; its meaning is apparent and obvious. If, then, the section does not apply to such work as was being done in the fifth seam, we have no power to grant the relief prayed for, whether that work is conducted alone, or in connection with the regular working of other seams. It is to be assumed that the Legislature meant just what, in the language of this act, is clearly expressed. The first and cardinal rule for the construction of statutes is, that when the intent of the Legislature is plainly expressed, it must prevail; that when

the language of a statute is clear and unequivocal, without ambiguity or uncertainty, we are to presume that it expresses the intent of the Legislature, and no construction is necessary. It may be that the working of the first and third seams at the same time that the communication was being made in the fifth increases the hazard and risk to those engaged in the work, but this is a matter for legislative action. We cannot make the law.

The decree in this case is, therefore, reversed, and the bill is dismissed at the cost of the appellees.

Messrs. E. P. & J. V. Darling and G. R. Bedford, for appellants.

Messrs. Dickson & Atherton, for appellees.

NEW COLLIERIES AND COLLIERY IMPROVEMENTS MADE DURING 1883.

Clear Spring Coal Company.

This new company entered the field of operation January 3, 1883, when coal was first sent through their newly completed breaker. Their colliery is situated in West Pittston, at the extreme eastern end of this inspection district. The hoisting shaft is 28′×12′ area, and one hundred and sixty feet deep to the Pittston vein. The air-shaft is 12′×12′ area, and sunk to the same depth. The Seven-Foot and Pittston seams are both being mined, and during this year one hundred and one thousand tons of coal were supplied to the market. A slope was driven to work the coal below shaft level to a length of four hundred feet, which has also been in operation for several months. The mine is ventilated by a Dawson fan, with open periphery, producing a ventilation of sixty thousand cubic feet per minute. The roof or top over the Seven-Foot seam is a very brittle, unreliable shale, dangerous and requiring careful mining, in addition to an unusual number of props to secure safety. The colliery is equipped with good machinery and an efficient breaker, having all the requirements of the law fully complied with.

Alden Coal Company.

This is another new establishment, which began to mine and ship coal to market January 18, 1883. Their colliery is located in Newport township, and they are mining the Forge and Twin seams. The shaft is 26′×12′ in size, and is sunk to a depth of two hundred and seventy-one feet to the Twin vein. A tunnel 7′×9′ is driven on a level with the breaker-dump from the surface through the Forge, Twin, and into the Ross seams, and the second opening of shaft is in this tunnel The mine is ventilated by a fifteen-foot Guibal fan; but this is hardly adequate to produce an effective ventilation of both shaft and tunnel workings.

The capacity of the breaker is about eight hundred tons per day, but the mine is not yet opened so as to ship that quantity. They mined ninety-one thousand four hundred and seventeen tons in 1883, and are increasing their productive capacity rapidly.

Hanover Coal Company.

The Maffit colliery of this company started to mine coal March 10, 1883,

and by the end of the year had mined fifty-nine thousand seven hundred and eighty-six tons. The Ross vein is worked by a slope, but this will only be used for a short time, the company having decided to sink a shaft to hoist the coal from that seam. A tunnel is driven into the Red Ash seam on a level with the breaker, the coal from which is brought out by mules. The ventilation is produced by a fifteen-foot fan, but the pitch of the seam being very steep some difficulty is experienced in conducting the air-currents to the face in desirable quantity. In a short time we expect that this difficulty will be subdued, when other openings can be gained for the admission of the air.

The breaker is a new structure, equipped with the latest improved machinery, and the requirements of the law have been complied with in all its arrangements.

Fuller Coal Company.

The Fuller shaft and breaker in Kingston township were completed and began to produce coal in the last week of August, 1883. The shaft was sunk through the six-foot seam down to the eleven-foot seam, but the latter is not mined for the present, the six-foot being more available. The colliery is equipped with excellent machinery and an efficient breaker. Over and underground, the effects of order and attentiveness to details are at every point apparent. The ventilation of the mine is good, and the openings are made with a view of maintaining good ventilation to the end.

A slope is being driven to work the coal lying below the shaft level. This is down a distance of five hundred feet at this writing, and is still being driven forward.

Messrs. Cowan & Dunniny.

The Scholey colliery of this company is situated about one mile east of Wyoming. The main shaft is 24′×10′ in size, and is sunk at present to the Pittston vein, a depth of three hundred and forty-three feet. They have cut the six-foot seam also at a depth of one hundred and eighty-five feet, and the five-foot seam at a depth of about one hundred and fifty feet. Owing to the unusual depth of sand overlying this track, they intend to work the lowest vein first, thereby ensuring greater safety.

They have a large breaker which was completed and started to pass coal through on the 3d of September, 1883. The hoisting engines are geared-acting, the cylinders being eighteen by thirty-six inches.

They failed to sink the first air-shaft, owing to the trouble and difficulties encountered from quicksand. It was sunk to the depth of about one hundred feet, and was abandoned. The new air-shaft is 10′×18′, and is going down successfully. At this writing the second opening was not effected, but they are driving openings ready to connect with the air-shaft when it will reach the vein.

Hillman Vein Coal Company.

This company sunk two shafts, one for hoisting coal, and the other for a second opening and ventilating purposes. They are located on the east

end of Wilkes-Barre, within the limits of the city. The size of the hoisting shaft is 16′×11′, and the area of the air-shaft is ninety-one square feet. Both are sunk to the three-foot seam, a depth of two hundred and eighty-two feet. The breaker was completed and started to work on the 28th of September, 1883. Both shafts are connected to the workings, and the ventilation is produced by a Guibal fan, sixteen feet diameter. They are working both the three-foot and Hillman seams, and both are emitting carbureted hydrogen gas very freely, which caused considerable trouble while sinking the shafts.

The Lehigh Valley Coal Company.

The Dorrance shaft is completed to the Hillman seam, a depth of six hundred and two feet. Two cages are already in operation to hoist from this seam, and the second opening is now being driven to connect with the air-shaft. The air-shaft is sunk to the same seam, and reached it at a depth of three hundred and thirty-four feet. Its size is twenty-five by ten feet. A new thirty-five feet Guibal fan is being erected at the top of the hoisting-shaft, a part of which shaft is to be used as an upcast. The breaker is in course of construction, and will be ready to work in a few months. It is evident from the extensive preparations that this is intended to be a large producing colliery, and will be actively at work during the latter part of 1884.

The Maltby shaft was sunk to the eleven-foot seam, an extension of one hundred and twenty feet, and its depth at present is two hundred and eighty-seven feet. A second opening to this seam was made by driving a passage out to the outcrop of the vein. A slope is being driven down the dip of the vein, which had reached a distance of five hundred feet at the close of the year. They intend to drive a tunnel from the bottom of this slope to the six-feet vein, to work that seam under the flats, beyond the point where the old river-wash exists. The dams erected around the shaft in the six-foot seam, described in last year's report, hold the water perfectly well, and no trouble from that source is apprehended.

The Lehigh and Wilkes-Barre Coal Company.

The collieries of this company have been operated under contract by Charles Parrish and Company for a number of years, but they all passed into the management of the Lehigh and Wilkes-Barre Coal Company on the first day of August, 1883. This change was regretted by a large number of people who were employed at various branches of work in those mines, and the excellent condition in which the mines were left speaks well of Mr. Parrish's management.

At the Hollenback mine, a tunnel was driven through the anticlinal existing between this and the Diamond mines. This tunnel was made for the purpose of leaving the water run from the Diamond into the Hollenback mine. The lowest portion of the Diamond workings was filled with water to extinguish a fire, as reported in my last report, and it was tapped

from the said tunnel by a drill-hole two and a fourth inches in diameter and eighteen feet long, about five o'clock, A. M., September 14, 1883. The water has been running continually since, but it is not all out yet.

A tunnel was driven in this mine from the Baltimore to the Hillman seam. It is seven hundred feet in length, and one hundred and twelve feet area, on a grade of eighteen degrees. The second opening was made by driving a passage to the shaft.

The new breaker erected at the Stanton mine started to put coal through September 1st, 1883. This colliery had been idle since the fire which caused the flooding of the mine in 1879. The new air-shaft was connected to the working on April 18, 1883, and they immediately went to work casing the air-shaft preparatory to setting the new thirty-five-foot fan to work.

The mine is now in excellent condition, having a very large quantity of air circulating, and plenty of margin to meet any extra requirements.

At No. 11, the Lance colliery, the old breaker was torn down and a new structure erected in its place. This started to work June 30, 1883. The colliery was equipped with a complete set of new machinery, consisting of a set of direct-acting hoisting-engines and conic drum, a breaker-engine, a pair of hoisting-engines for underground slope, but located on surface, and a thirty-five-foot fan, all of the best kind of machinery.

At the Reynolds colliery, the tunnel reported last year was completed to the Ross vein. Its total length is six hundred and forty feet. They are now working to effect a second opening to it.

At the South Wilkes-Barre shaft, a fan was erected fifteen feet diameter, dimensions of which can be seen in table of new fans.

The Susquehanna Coal Company.

This company is making rapid and sure progress in all their collieries. A pair of massive engines was erected to sink the No. 1 shaft extension from the forge seam to the red ash, and the three compartments at the southern end of the shaft were extended to a depth of two hundred and sixty-six feet below the forge vein, and they expect to cut the red ash seam in the first part of 1884. Two new shafts were opened for ventilating purposes from the surface to the Mills seam. Both are eighteen by thirteen feet area, and one is one hundred and eighty feet, and the other sixty-three feet deep. The ventilation of this company's collieries has been much improved during last year, and the spirit of the management from the highest officer to the lowest seems to be alert watching improved methods and adapting them to their mines.

A new double fan was erected on one of the above shafts, designed by Mr. J. H. Bowden, chief engineer of this company, and it produces excellent results, improving the ventilation greatly in two or three of the mines.

The underground slope in No. 2 shaft was extended during this year to a length of one thousand five hundred feet, on an average grade of eleven degrees. The tunnel reported last year in this shaft was completed to the

Ross and Twin veins, its total length being one thousand two hundred and seventy feet. This opens a large territory of coal.

The No. 4 slope was extended, reaching a point two hundred and eighteen feet below the old level, and opens a new lift of excellent coal.

A new colliery is to be opened at Morgantown, four miles west of Nanticoke. The shaft is $33' \times 12\frac{1}{2}'$ area, and will have a probable depth of eight hundred feet to the Ross seam. A horizontal tunnel is being driven also to cut the same seam, which is seven feet high by sixteen feet wide, and is expected to cut the coal at a length of about one thousand two hundred feet. The shaft was down at the end of the year to a depth of fifty-six feet, and the tunnel was in from the opening a distance of seventy-five feet.

At the Grand Tunnel the water was pumped from the old No. 3 slope, and a new slope is being driven down from a point near the bottom of the old McFarlane shaft, which was, at the end of the year, down a distance of eight hundred and twelve feet below the line of the old workings. This will open an extensive area of coal of the Red Ash seam and of good quality.

The Wyoming Valley Coal Company.

At the Forty-Fort shaft an underground slope is in progress of being driven to work the coal lying below the shaft level. It was down, at the close of the year, a distance of nine hundred feet, on an average grade of seven degrees, and is still continued.

At the Harry E. colliery a new tunnel was driven from the surface to the Bennett vein, a distance of two hundred and twenty-five feet. Its size is $9' \times 7'$, and it has cut the vein nine feet thick of excellent coal.

The Delaware, Lackawanna and Western Railroad Company.

At the Avondale colliery this company is sinking a new air-shaft, with a view of putting a fan on it to increase the ventilation of the underground slope. The shaft is $16' \times 12'$ area, and was sunk to a depth of one hundred sixty-five feet at the close of the year. The underground slope has opened a large extent of workings, and the new fan will prove an effective addition to the ventilating power.

The Woodward shafts have not yet been completed, and it may take another year to complete their sinking. No. 1 was at a depth of five hundred and thirteen feet and No. 2 four hundred and eleven feet at the close of the year 1883. They are beginning to prepare for the erection of a breaker, and have partly graded the railroad beds leading to that structure.

The Pettibone shaft was started to sink on April 18, 1883, and after encountering great difficulties in passing through clay and sand, they have successfully reached the rock at a depth of eighty feet. The progress of this enterprise has been watched with unusual interest, because it was generally supposed that a shaft could not be sunk on the sandy flats, owing to its great depth of sand. This company contemplate sinking another shaft to constitute the second opening required by law, and it will be started in the course of a few months.

The Kingston Coal Company.

The No. 4 shaft of this company was completed upon reaching the Red Ash seam at a depth of six hundred and sixteen feet. Its size is 30′×12′. This opens a very large tract of convenient coal.

The Gaylord Coal Company.

At the Gaylord colliery a tunnel is in progress from the Ross to the Red Ash seam. Its sectional area is 7′×10′, and its length, at present, is six hundred and fifty feet. This is intended to work the coal above the level of the bottom of the Gaylord slope.

A. J. Davis.

At the Warrior Run colliery a tunnel was driven from the C to the D vein. Its sectional area is eighty-five square feet, and its length one hundred and ten feet. The seam of coal was found eleven feet thick, and of good quality.

The Franklin Coal Company.

This company has started to sink a new slope, from the surface diagonally through the measures, to cut and work the Red Ash seam. Its sectional area is one hundred and sixty feet square, grade thirty degrees, and it was driven to a depth of one hundred feet at the end of the year.

W. G. Payne & Co.

At the East Boston mines of this company the shafts are being sunk or extended from the Bennett to the Ross vein. They had not struck the expected point at the close of the year, but they were approaching it closely. The blasting-hole in the air-shaft was thought to have penetrated the coal seam.

The Red Ash Coal Company.

A new tunnel is being driven from surface at the outcrop of the Baltimore seam, and is intended to drain and mine the coal lying above that level, and between that and the Red Ash slope, of both the Ross and Red Ash veins. It was driven a distance of three hundred and seven feet at the end of the year, and is expected to be finished sometime in 1884. This will open a wide extent of very convenient territory and desirable coal.

The West End Coal Company.

This company is opening a new mine and building a new breaker about three miles east of their West End colliery, in Conyngham township. It is to be named East End colliery. The breaker is expected to be ready in March, 1884. The vein is opened by two tunnels—one on each side of the basin—and they will mine and ship coal as soon as the breaker is completed.

The Delaware and Hudson Canal Company.

This company is sinking two new shafts in Plains township, near the Baltimore mines, for the purpose of mining the Red Ash seam. The main

shaft was started at a size of 24×63 feet, which size was continued through the soil and sand until they got upon the rock. Then it was reduced to a size of 12×48 feet, which is to be its final dimensions. A 6-feet wall is to be built around the shaft from the top of the rock to the surface, to keep the sand and gravel up. The shaft was down at the end of the year to a depth of one hundred and forty-five feet. The other shaft is located east of the main one near the entrance of the Baltimore slope. Its size, through the soil and clay, is 16×43 feet, where two thicknesses of strong, timbered curbing is to be placed. From the face of the rock down, its size is to be 11×36 feet, being its final dimensions. This shaft was only seventy-five feet deep at the end of the year 1883, but the work will be rapidly pushed to completion, and a very large extent of coal area will be available for mining when the two shafts are completed.

TABLE No. 3.—*Giving details relative to New Fans and Fan-Engines erected in the Wilkes-Barre District during the year 1883.*

NAMES OF THE COLLIERIES.	Pattern of Fan.	DIM'SIONS.		SIDE INLETS.		Working speed in rev'ns per minute.	SECTIONAL AREA OF		Cubic feet of air per minute exhausted.	Water-gauge on fan side.	Horse-power of fan.	FAN.	DIM'SIONS OF STEAM CYLIND'RS.		Gearing.	Steam pressure, in pounds.	Horse-power of engines.
		Diameter of fan in feet.	Face of fan in feet.	No. of inlets.	Diameter of inlets in ft.		Upcast in sq. feet.	Downcast in sq. feet.				Horizontal or vertical.	Diameter in inches.	Length in inches.			
1. Clear Spring, ...	Dawson, . .	14	4	2	7	100	144	144	65,300	. .	. . .	Horizontal,	14	30	Belt, .	70	60
2. Maffit, ...	Gulbal, . .	15	5	1	8	60	36	84	53,900	. .	. . .	Vertical, .	12	. . .	Direct,	60	20
3. Fuller, ...	Dawson, .	14	4	2	7′ 1″	50	144	112	85,000	. . .	. . .	Horizontal,	16	30	Belt, .	60	80
4. Hillman Shaft, ...	Gulbal, . .	16	6	1	8	65	91	154	80,490	. . .	. . .	Vertical, .	14	18	Direct,	75	35
5. South Wilkes-Barre, ...	Gulbal, . .	15	5	1	7½	65	. . .	. . .	50,000	.	. . .	Vertical, .	10	18	Direct,	60	25
6. No. 4 Slope, Nanticoke, ...	Double Fan,	20	6	4	9	. . .	. . .	. . .	. . . . .	. . .	. . .	Horizontal,	20	36	Belt, .	60	. . .
7. Enterprise, ...	Gulbal, . .	25	8	1	10	56	80	264	108,000	0.4	6.8	Horizontal,	18	36	Direct,	70	60

TABLE No. 4.—*Giving details relative to the progress of new shafts in the Wilkes-Barre district, and their depths December 31, 1883.*

Names of the Shafts.	Names of Operators.	Purposes.	Dimensions.		Depth on Dec. 31, 1883 - feet.	Deepest coal seam to be cut at present.	Probable depth in feet.	Number of persons employed.	Fatal accidents to employees.	Non-fatal.	Remarks.
			Length in feet.	Breadth in feet.							
1. Dorrance, . .	Lehigh Valley Coal Company, . .	Hoisting coal, ...	52	13	602	Hillman, . . .	602	30	2	. . .	Part of this shaft will be extended to the Baltimore seam, which will have 2 cages working.
2. Dorrance No. 2, .	Lehigh Valley Coal Company, . .	Second opening, ...	25	10	334½	Hillman, . .	334½	27	None.	1	
3. Newport, .	Susquehanna Coal Company, . . .	Hoisting coal, ...	33	12½	56	Ross, ...	800	70	None.	None.	Started November, 1883.
4. Woodward No. 1, .	Delaware, Lack'a & Western Co.,	Hoisting coal, ...	53	12	513	Red Ash, . . .	800	70	4	. . . .	Sinking continuing.
5. Woodward No. 2, .	Delaware, Lack'a & Western Co.,	Hoisting and ventilat'g,	35	12	411	Red Ash, . . .	800	70	None.	1	Sinking continuing.
6. Pettibone, .	Delaware, Lack'a & Western Co.,	Hoisting coal, ...	37	12	80	Red Ash, .	1,060	60	None.	None.	Started April 13, 1883.
7. Alden, ...	Alden Coal Company, ...	Hoisting coal, ...	26	12	271	Baltimore, . .	271	. . .	1	. . .	Completed in 1883.
8. Schooley, . .	Cowan & Dinniny, ...	Hoisting coal, ...	24	10	343	Pittston, . . .	343	*	1	. . . .	Completed in 1883.
9. Schooley Air-Shaft,	Cowan & Dinniny, ...	Ventilation, ...	18	10	186	Pittston, . .	357	3 6	2	. . . .	Completed.
10. Fuller,	Fuller Coal Company, ...	Hoisting coal, ...	34	10	182	Eleven-Feet,	182	*	1	.	Completed in 1883.
11. Fuller Air-Shaft, .	Fuller Coal Company, ...	Ventilation, ...	14	10	. . .	Eleven-Feet,	. . .	*	None.	None.	Completed in 1883.
12. No. 4, Kingston, .	Kingston Coal Company, .	Hoisting coal, ...	30	12	616	Red Ash, . . .	616	30	1	. . .	Completed in 1883.
13. Avondale Air-Shaft	Delaware, Lack'a & Western Co.,	Ventilation, ...	16	12	192	Red Ash, . .	. . .	15	None.	None.	Started in 1883.
14. Hillman, ...	Hillman Vein Coal Company, . .	Hoisting coal, ...	16	11	282	Hillman, . . .	282	. . .	None.	None.	Completed in 1883.
15. Hillman Air-Shaft,	Hillman Vein Coal Company, . .	Ventilation, ...	13	8	240	Hillman, . .	240	30	None.	None.	Completed in 1884.
16. Baltimore Red-Ash shaft, . . .	Delaware & Hudson Canal Co., . .	Hoisting coal, ...	48	12	145	Red Ash, . .	.	30	None.	None.	Commenced in 1883.
17. Baltimore Slope shaft, ...	Delaware & Hudson Canal Co., . .	Hoisting coal, . . .	36	11	75	Red Ash, . . .	. .	30	None.	1	Commenced in 1883.
						Totals, . .	. . .	498	12	3	

* Number of persons employed given in Table No. —.

Eight of these shafts were completed during 1883. It is intended to put four cages to work in the Dorrance shaft, two of which are to hoist from the Hillman seam, and the other two from the Baltimore seam. In the Baltimore seam, part of the shaft is not sunk further than the Hillman seam yet.

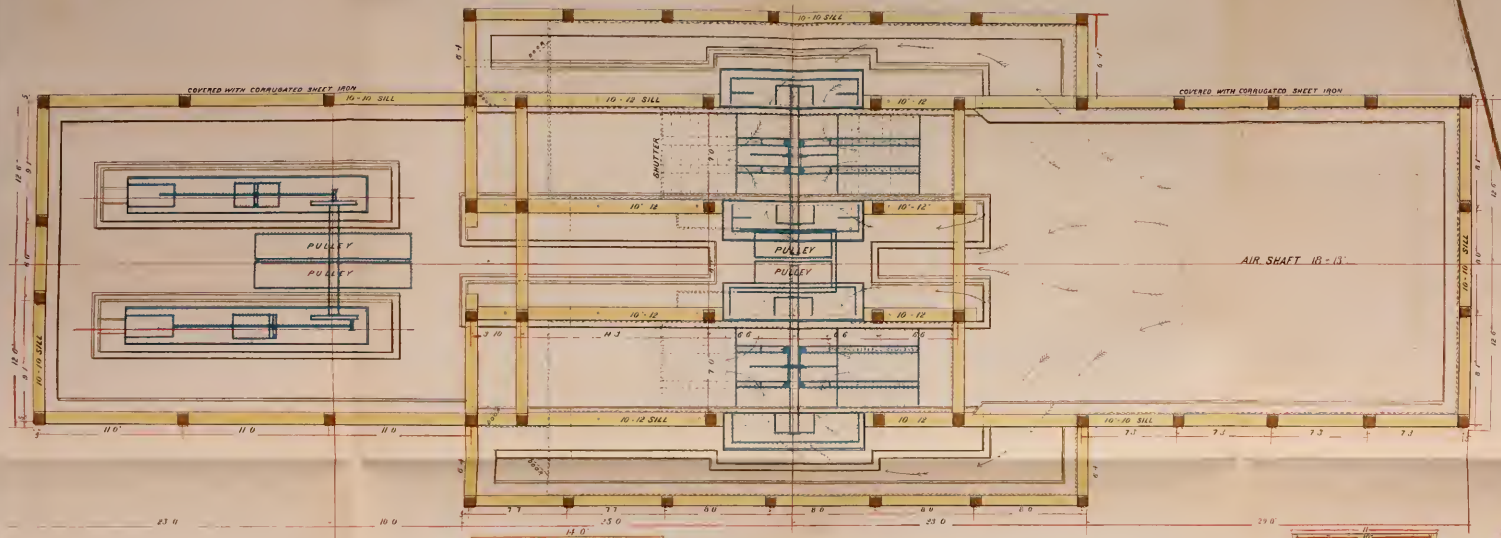
Improvement in Safety-Lamps.

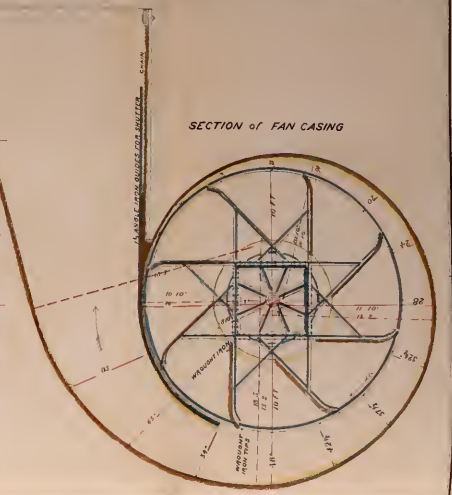
The safety-lamp of the miner is an instrument of great importance to all parties connected with gaseous coal mines, where hundreds of human lives depend solely upon its power to prevent the flame from passing through the wire gauze and cause explosions, and any improvement which promises, even in a small degree, to increase its safety and reliability should receive encouragement from all mining men. The lamps generally used in this district are the common Davy lamps. In some of the mines a small number of the Clanny lamps are used, but greater confidence is placed on the Davy, especially when necessary to test the presence of fire-damp. Mr. J. L. Williams of Shenandoah, Pennsylvania, has happily devised an improvement which can be applied to any safety-lamp hitherto used; it consists of a tube or sleeve, sliding upon the wick-tube and attached to a wire which passes through the body of the lamp to the bottom, where a recess is formed for the admission of the finger or thumb. A single movement of the finger presses the wire upward, carrying the sleeve over the wick and instantly reduces the flame or extinguishes it as the operator may desire. The instantaneous action of this simple and efficient invention is remarkable, and its value to fire-bosses and persons who frequently come in contact with large bodies of fire-damp cannot be estimated. It will increase their confidence in the lamp, and remove the anxiety generally felt lest they should fail to manipulate the flame and extinguish it when surrounded with gas or fire-damp.

A New Double Fan Ventilator.

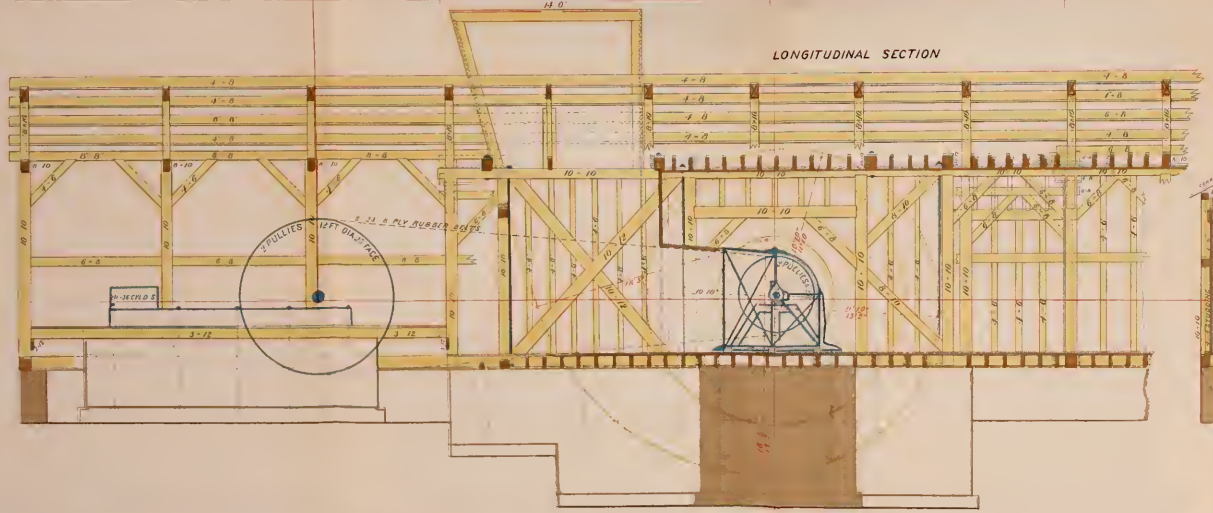
Through the kindness of J. H. Bowden, esquire, chief mining engineer of the Susquehanna Coal Company, I am able to present in this report a plan of a new ventilator designed by him, and erected to ventilate a part of each of the No. 2 slope, No. 4 slope, and No. 1 shaft workings of the Susquehanna Coal Company at Nanticoke, Pennsylvania. This ventilator consists of two fans of a modified Guibal pattern, each twenty feet diameter, six feet wide, with two inlets each for the air current to enter into them. The four inlet passages are each eight feet ten inches diameter, giving ample room for a large inflow of air at low velocity. In the center of each fan a disc, seven feet diameter, is fastened upon the shafts to guide the air currents and prevent them from clashing upon entering the body of the fans. Besides this it has other important distinctive features which I think should be fully described. The two fans run on separate shafts, but they are coupled together in such manner that both run at uniform velocity. If one should become deranged, it can be detached, and the other used singly to maintain the ventilation of the mines while the deranged one is being repaired. This ventilator is operated by two steam engines, supplied with steam from the boilers at the No. 1 shaft, through nearly two thousand feet of six-inch wrought-iron tubing; also, by additional line of four-inch wrought-iron tubing, to be used in case of any accident to the

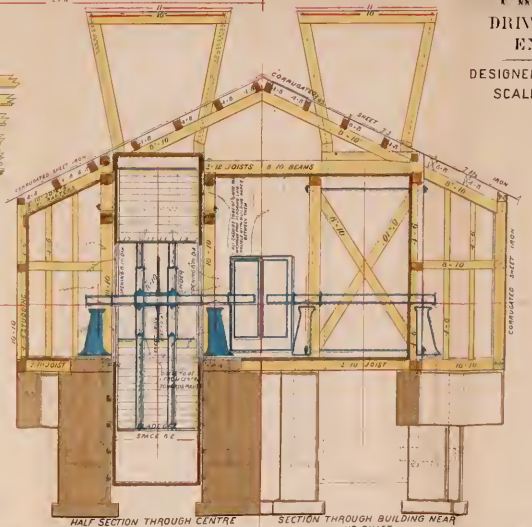
PLAN





LONGITUDINAL SECTION





HALF SECTION THROUGH CENTRE OF FANS

SECTION THROUGH BUILDING NEAR AIR SHAFT

SUSQUEHANNA COAL CO's TWO 20 FT. FANS, DRIVEN BY A PAIR OF ENGINES 20×36.

DESIGNED BY J. H. BOWDEN, C.E. ENG

SCALE 6⅜ FOOT TO 1 INCH.

1883.

six-inch line. Both lines are carefully mounted and covered, so that there is only a very little condensation.

The principal reason for not locating boilers near the engines is the danger of igniting the gas when expelled in large volumes from the mines; the workings ventilated emit large quantities of explosive gases. No naked lights are allowed to be used in the outlet current, and only when necessary are they allowed in and about the buildings. Fires are in no case permitted, and visitors are not admitted except by special permission.

The cylinders of the engines are twenty inches diameter and three feet stroke, acting directly upon two belt-pulleys, each twelve feet diameter and twenty-five inches wide. The power is transmitted by two eight-ply rubber belts, each twenty-four inches wide and ninety-nine feet long, to a pair of six-feet pulleys twenty-five inches wide fastened on the fan-shafts; so that for each full stroke of the engines, two revolutions of the fans are produced. The engines and fans are so effectively coupled together that, when running, they move as perfectly uniform as if the whole structure were one machine, and yet they may be detached in cases of necessity and operated singly.

The area of the vanes, or fan-handles, is six feet by five feet seven inches, and the curvature of their tips may be changed from being a tangent to constitute radial-tipped blades, if practical experience demonstrates that the latter is the most effective. Each fan is provided with a movable shutter; the curvature of the periphery of the fan-casings and also the dimensions of the *evasee* chimney openings differ from the usual practice, as may be seen by reference to the plan.

The two six-feet belt-pulleys on the fan-shafts are covered by a cast and wrought-iron casing, so arranged as to make an air-tight partition against the atmosphere in the space wherein the belts pass. A hinged door permits this to be quickly thrown open when necessary to get at the pulleys or belts.

The machinery has been constructed for high speed. The journals have long bearings, properly arranged for lubricating. The moving parts of the fans are planed, turned, and fitted at their joints, and they are all secured with turned and fitted bolts. All the materials of the machine and structure are of the best quality and workmanship. The machinery was made at the Vulcan Iron Works, of Wilkes-Barre, and erected by the Susquehanna Coal Company. The foundation of both machinery and house structure is of stone. The building frame is made of white pine, and the top, bottom, and sides are cased with white pine T and G flooring, laid in double-thickness, and interlaid with building-paper, making an air-tight wall all around. The outer sides and roof are covered with corrugated iron, which, of course, is inflammable.

This ventilator has been in operation now for several months, and is producing excellent results. The engines are designated to run, if necessary, at a speed of one hundred revolutions per minute, producing two hundred

revolutions of the fans; but only one half this speed has yet been needed to produce the needed quantity of ventilation. At one hundred revolutions of fans per minute, it maintains a ventilating pressure of fifteen and six tenths pounds per square foot, or three inches water-gauge. I have not been able to obtain an accurate measurement of the air exhausted, but it is known to average from two hundred and seventy-five thousand to three hundred thousand cubic feet per minute. Mr. George T. Morgan, superintendent of the Susquehanna Coal Company's collieries, who, by the way, is a gentleman thoroughly versed in the effects of fans, and is deeply absorbed in the study of their improvement, stated that when the ventilator was tried, before it was connected to the air-shaft, at a speed of sixty-five revolutions of engines and one hundred and twenty revolutions of fans, it produced a water-gauge of fully four and a half inches; a ventilating pressure of twenty-three and four tenths pounds per square foot. No air was admitted—only what passed in through the open doors of the passages leading into the fans. This was measured as accurately as possible where the velocity was so high, and the air exhausted was between one hundred and ninety-five thousand and two hundred thousand cubic feet per minute.

It is intended by the parties interested to make thorough tests of the ventilator's capacity and efficiency as compared with the applied power as soon as time will permit and an opportunity is afforded to make complete experiments, the result of which shall be fully reported in future reports.

The air-shaft upon which this ventilator is located is eighteen by thirteen feet area, and the air-passages leading from the shaft to the fans are very large and roomy.

Mr. Bowden has expended much thought and study on the mechanical construction of mine-ventilators. He takes a live interest in all mechanical improvements, and is not slow in profiting from the experience and knowledge of his coöfficials and others whose suggestions have been useful and valuable. The outcome of which coöperation is that the mechanical mining-plant of the Susquehanna Coal Company is nowhere excelled.

The hoisting machinery as well as all other machines exhibits a progressive spirit, leading in all features, consistent with economy and sound principles. The fans in question are the product of the same progressive spirit, and although no claim of perfection is set forth, it is certainly an effective ventilator, and one that will compare favorably with the best fans in existence at present.

Accidents from Explosions of Fire-Damp.

Thirty-seven serious accidents from explosions of fire-damp, seven of which proved fatal, occurred in the mines of this district during the year 1883, and, as repeatedly stated in previous reports, this class of casualties are nearly all arising from the negligence or deliberate recklessness of the persons injured. In the frequency of these casualties a lack of discipline and the consequent non-compliance or indifference to well-established rules

regarding the conduct of operatives in gaseous mines is painfully manifested. Every person who enters his working place, or attempts to brush gas, or does any act in violation of the existing rules of a mine, should be promptly punished in such a manner that every one may be impressed with the fact that the rules of the mine must be respected. When a person is burned, of course he is punished, but there are many instances of noncompliance with rules allowed to pass, perhaps, unpunished, and this naturally breeds indifference and evinces a lack of force in the government of the mine. Such looseness of discipline is manifested in the frequency of accidents from explosions of gas, which are almost all reported as the result of the careless conduct of the person injured.

Accidents Nos. 29 and 30.—Edward Rinker and Henry Baker, both carpenters, were fatally burned by an explosion of gas at the top of Dorrance shaft May 4, 1883. The shaft was sunk to the Hillman seam, a depth of five hundred and eighty-seven feet, and the buntons and guides were put in to within twenty-six feet of the top or surface. The carpenters had constructed a new head-gear, and were ready to place the pulleys in position. Immediately after dinner on this day, Baker went up to the top of the head-framing, forty feet high, and dropped a plumb-line to ascertain the center-point of the shaft-guides. At the same time Rinker went down and was standing on a narrow platform, twenty-six feet below the surface, in the shaft, to watch the plumb-bob. The shaft was ventilated by steam jets. No one knew its condition at that time, as they had not been able to go down to examine it since the old head-gear was taken away. To guard against an accident the men had been repeatedly cautioned against taking any light or even a lighted pipe near the mouth of the shaft lest some fire-damp should accumulate and explode. However, while Rinker and Baker were in the position described above an explosion of gas occurred, the flames extending above the top of the frame-work, and both men, who were the only persons present, were burned so that both died shortly after. It was afterwards supposed that Rinker struck a match to light his pipe, and ignited the gas, although he had been cautioned several times of the possibility of gas existing in the shaft, and of the danger of smoking on that account.

Accident No. 31.—William J. Davies, a miner's laborer, was fatally burned; Daniel Davies, a miner, and Morgan Beynon, a laborer, were slightly burned the same time in the No. 2 shaft, Nanticoke, May 9, 1883, at night. These three men were working together on the night shift. About nine o'clock, P. M., the fire-boss visited them, and noticing that the shelly coal on the upper side had run down, leaving a vacant space about eight feet high above the collars near the face of the gangway, he told them to use no naked light at the face lest gas should accumulate in that high hole, and they promised to comply with that order; but about two o'clock, A. M., the air-current got somewhat weaker, and the men noticed the difference; yet they concluded to finish their work, and paid no more attention to the

air-current. Contrary to the orders given by the fire-boss, they hung a naked lamp on the collar at the lowest side of the gangway; did not try to ascertain whether gas was accumulating or not, and finally gas accumulated and exploded with the result stated.

ACCIDENT NOS. 36 AND 37.—Gomer Evans, a door-boy, and James Colleran, a driver, were both killed by an explosion of fire damp in the Mineral Spring slope, May 21, 1883. About eleven o'clock, A. M., at the request of a miner named P. P. Gallagher, the boys went into an abandoned chamber to obtain a canful of water. It appeared that they had been there many times before on the same purpose, and also several other persons besides them; but no one apprehended any danger. On this occasion, however, a terrific explosion took place, blowing every movable thing in that neighborhood into fragments, and the two boys were instantly killed. The bosses and the workingmen testified that no gas was ever seen there before, and no satisfactory reason was elicited for its presence on this occasion. Provided the ventilation was circulating properly, it was not a place where a person would expect to find an accumulation of gas, and the cause of its presence remains a mystery.

ACCIDENT No. 43.—John Brislin, a miner, was burned by an explosion of gas in No. 1 shaft, Nonticoke, July 23, and died at the Wilkes-Barre hospital July 29, 1883. He drove a cross-heading from his place to the adjacent breast, and made a hole barely large enough for him to pass through it into that breast. The following morning the fire-boss did not examine the place to which Brislin had holed, believing it all right. When the latter went to work he went into this old place, which was not working, and exploded some gas, which burned him and caused his death.

ACCIDENT No. 77.—John Barrett, a miner, was burned in the Enterprise colliery November 5, 1883, and died November 11. He was working a breast in which a quantity of gas was found standing when the fire-boss examined the place that morning. This was removed by erecting a length of brattice, which sent the ventilation close to the face. After firing a few blasts fire-damp accumulated again, and he went to work to brush it out, but upon finishing he did not test the place with his safety-lamp, but took his naked light on, and it proved that the gas was only mixed by his brushing, and it exploded. At first they thought he was only slightly injured, but he died at the time stated.

Accidents by Falls of Roof and Coal.

This is the cause of the largest number of accidents resulting in personal injuries to miners and laborers underground. Over thirty-one per cent. of the accidents of 1883 occurred in this manner, twenty-five of which proved fatal. The most of them could have been prevented by the exercise of ordinary care and live attention to the details of the work and its attending dangers; but it is evident that many miners grow careless and become accustomed to take great risks which could easily be avoided, and they are finally caught and severely injured or perhaps killed. As long as

men will act in this manner we cannot expect this class of accidents to be greatly reduced.

Accident No. 2.—James Thomas, a miner, was injured at the East Boston colliery January 11, 1883, and died in a few hours after he was taken home. He and his brother Charles were together driving a gangway in the Cooper seam. The bottom bench of coal was worked from under the top one for a distance of about four feet. They fired a shot in the bottom bench, and James immediately went back to work the loose coal down. His brother begged him not to go, saying that the top coal was dangerous; but he paid no attention to what his brother said, and while he was busy poking the loose coal with a drill the top bench fell, catching him under its edge. When released he said to his brother, "I was a foolish man to go in under that coal." He was a quiet, inoffensive man and a good workman, and his death was a severe blow to his family.

Accident No. 3.—Joseph Inch, a miner, was instantly killed in the No. 4 shaft, Plymouth, January 17, 1883. He was driving an airway; had driven a cross-cut nearly through into the gangway. Believing it better, he went around on the gangway side and fired a shot there to meet the cross-heading. Immediately after firing, he went to work the loose coal out, and a large slab of thin rock fell from the roof, killing him instantly. If he had taken a little time to examine the roof, the accident could have been easily averted. He was a good workman, very industrious, and had saved considerable property by his frugal habits.

Accident No. 7.—Peter Peterson, a miner, was instantly killed by a fall of a small piece of coal in the Midvale colliery, February 7, 1883. The coal fell from a point where the top was taking a short curl upwards, and evidently could not be detected before it fell. This man was careful and had not the least suspicion of danger.

Accident No. 9.—David Waters, a miner, was working out the bottom coal in his chamber, February 14, 1883, when a large piece of top coal fell upon him and killed him instantly. A slip was revealed, showing that there was nothing to sustain the top coal in its original position, and it was evident that with the ordinary degree of care this accident could have been prevented.

Accident No. 13.—Morgan Evans, a miner at the Exeter colliery, was instantly killed by a fall of "black rock" while working at the face of his breast, February 27, 1883. He had pulled a large piece of this treacherous rock down, leaving a bench, supposed to be perfectly safe, to remain; but it disintegrated so rapidly, and fell when he thought it was too fast to be pulled down. He was an old experienced miner, well acquainted with this rock, and was generally very careful at his work.

Accident No. 14.—Lewis Griffiths, a miner, and Martin Vinefski, a laborer, were working together in a breast at the Grand Tunnel colliery, February 28, 1883, when a piece of top coal unexpectedly shot out of the roof, killing Griffiths almost instantly and breaking Vinefski's leg. Both

had thought they heard something cracking, and were listening when the accident occurred.

ACCIDENT No. 28.—John Stevenson, a door-boy, walked away from his door into the gangway, in the Harry E. colliery, April 27, 1883, and when approaching a party of men employed repairing the track, a large flake of slate fell, killing the boy instantly, and the men barely escaped without injury. No one had seen the boy, and his presence was not discovered until they began to remove the fallen slate. The men stated that he had carried no light or they would have noticed his presence.

ACCIDENT Nos. 32 AND 33.—John Maguire, a footman, and Barney Nevin, a company laborer, were both killed at the bottom of the Hanover slope, Sugar Notch, May 10, 1883. When this accident happened this slope was newly opened. They were just making the passing branch at the bottom of slope. A gang of men had been working on it all the previous day, and had left everything apparently safe. This morning young Maguire descended the slope on the first car. On the second car young Nevin descended with a number of other men, and just as they got to the bottom they heard something fall, and instantly heard Maguire crying for help. Young Nevin being the most nimble, ran forward, and, upon approaching Maguire, a large stone measuring eighteen by eight feet fell on both, killing them instantly. This stone was twenty inches thick on one side, where a slip was cutting it along the lowest rib parallel with the gangway, and tapering to a feather edge along the other side. It evidently burst down without any warning or previous indication of loosening.

ACCIDENT No. 34.—Phillip Bath, a miner, was killed in the Clear Spring colliery, West Pittston, May 18, 1883. He was working in a breast in which the roof was brittle and dangerous; he was a careful miner, propping his place well, but on this occasion he made a fatal mistake. Immediately after firing a blast, not waiting for the smoke to clear, he went on to the face to see the effect of the shot, when a "bell" fell on him, killing him instantly. This stone resembled the stump of a tree, and dropped out of the roof soon after the coal was cut from under it by the shot. If the deceased had waited for the smoke to clear he could have seen the danger upon approaching it.

ACCIDENT No. 35.—Joseph Williams, a miner, was killed in the Enterprise colliery, Plains township, May 19, 1883. Upon investigating this accident it was found that the deceased immediately upon starting to work this morning fired a shot, which had been prepared the previous day. This shot was in the bottom bench over which the top coal was already projecting several feet, and was a free slippy coal. Immediately after firing the shot he ran forward to see its effect, and went on under the hanging top coal without stopping to examine it, and instantly the coal fell on him killing him as stated. This man had no need to be in such haste, for he had coal enough loose to fill a week's quota of cars, and his reckless conduct in this instance remains inexplicable.

Accident No. 43.—Evan Protheroe, a miner, was instantly killed in the Nottingham shaft, Plymouth, June 27, 1883. He was just opening a breast; had worked three days, and had loaded only four or five cars from that place. The fire-boss who examined the place that morning saw that a tier of slate at the roof was loosening, and told him to pull it down, and he promised to do so immediately. During the day, again two other miners, viz: D. Davies and John Williams, saw the dangerous roof, and advised Protheroe to pull it down; he replied that he would do so after loading a car of coal. He loaded one car after this, and was in the act of loading a second one when the rock fell and killed him. The fallen rock measured seven by three feet area and fifteen inches thick.

Comments are unnecessary on occurrences like this where such heedless stupidity is shown to repeated cautions; no other result could be expected, and the responsibility can be unmistakably placed on the right person by everybody.

Accident No. 46.—John H. Evans, a miner, was fatally injured in the No. 1 shaft, Kingston, July 9, 1883, and died the following day.

He was working a breast driven about twenty feet from the gangway. He had no laborer, and was loading a car when a thin flake of bone-coal fell from the roof, striking him, and resulting as already stated. Doubtlessly this bone cracked considerable before falling; but the deceased was very defective of hearing, and at the same time making noise by loading coal, could, very probably, not hear it cracking. The fallen bone was three inches thick and fell from a height of twelve feet.

Accident No. 53.—John Bloom, a laborer, of Polish nationality, was killed in the Dodson colliery, Plymouth, August 3, 1883. He was working with a miner named James Sherwood in a breast. The latter fired a shot in the top coal and immediately after the laborer went on to clean the road ready to receive a car, which was being brought in at that time by the driver. While thus employed a mass of top coal fell on him, killing him instantly. This is a case in which the miner was certainly at fault. He should not allow his laborer to go on to the face before him, and not until he (the miner) had examined the place and found it safe. Many of these Polish and Hungarian laborers do not realize the danger existing, and can not be taught but very slowly because they do not understand our language, and the miners who employ them should take care to keep them, as much as possible, out of danger.

Accident No. 56.—Albert Chickochufski, a miner, was fatally hurt in the No. 4 tunnel, Nanticoke, September 1, 1883, and died in half an hour after.

He was opening a breast from the side of another breast. The mining boss, Frank Micklass, visited him about two hours prior to the accident, and noticing a hanging bench of coal projecting about three feet over the bottom bench told this miner to pull it down. The latter immediately took a drill and was trying to pry it down when Micklass left; but the coal

could not be pryed down then and the miner drilled a hole again in the bottom coal and blasted it. Without giving the hanging coal further attention he went under it to drill another hole, and while he was thus occupied the top bench fell, resulting as stated.

ACCIDENT No. 60.—Charles Absalom, a driver, was killed in the No. 1 slope, Nanticoke, September 11, 1883. He was taking a trip of empty cars into the gangway; was sitting on the edge of the front end, right corner, with his feet resting on the bumper, evidently suspecting no danger. Upon approaching a certain point a large, long piece of rock, measuring 16×3 feet, fell upon him, killing him instantly. Although all the men who worked in that section of the mine were passing that point daily no one had noticed anything to arouse their suspicion regarding the safety of the place, and from the peculiar shape and location of the rock this was evidently true; therefore, no one is blamed.

ACCIDENT No. 61.—Thomas John, a miner, was almost instantly killed in the Bennett colliery, Plains township, September 12, 1883. He and James Phillips, another miner, had opened a breast, and had driven it about six yards in from the gangway, the pitch being eighteen degrees. Immediately after firing a blast in the face they went to work the loose coal down. Phillips was working the coal, and John was holding the light and watching him. A bench of rider coal was hanging over their heads, which suddenly fell upon John, injuring him so that he died in a few minutes. The height of the vein at this point was five and one half feet, and the fallen coal measured six by five feet area and one foot thick. They had not examined the hanging coal after firing the blast.

ACCIDENT No. 66.—John R. Walters, a miner, was instantly killed in the Reynolds colliery, Plymouth, September 21, 1883.

The deceased was driving an airway parallel with the lowest east gangway, on the top bench of the Red Ash seam. The roof consisted of disintegrating shale, very dangerous, and requiring close watching. Two days prior to the accident all the disintegrated rock was pulled down, and now Walters was laying an extension of the track confident of safety, when a piece of rock five by eight feet and ten inches thick suddenly fell and instantly killed him. The hidden seams in the roof could not be seen before it fell, and the deceased had evidently been led to believe that it was safe from its even appearance on the face of the roof. He was a miner of large experience, and of high respect among his fellowmen.

ACCIDENT No. 71.—Matthew Tulley, a driver, was killed in the Stanton mine, Wilkes-Barre, September 27, 1883. He drove his mule with an empty car to the breast worked by Gustav Schmaltz, and leaving the mule standing at the face he went back behind the brattice to the miner's box to fill his lamp with oil, and upon returning to the face a large fall of coal came upon him and the mule, killing both instantly. The miner was at work drilling a hole at that time, and narrowly escaped uninjured. The coal was unusually free and broken with slips, and was about twenty feet

high, and it was very difficult to ascertain its condition. Considering these circumstances, and seeing the aspect of the place, we cannot blame any one for the sad occurrence.

Accident No. 73.—Michael O'Rourke, a laborer, was instantly killed in the Fuller colliery, near Wyoming, October 16, 1883. He was working with Samuel Gingel, a miner, who was driving a gangway in which three shifts of eight hours each were working. Gingel and his two laborers were told that morning by the night men that the rider-coal over head was not very safe, and that they better pull it down; but they paid no attention to this warning, and went to work under it. About nine o'clock the boss visited them, and ordered them to pull it down at once. Upon receiving this order he (Gingel) tried to pry it down but failed. Then he fired a blast on the upper side, which took away its support. But, notwithstanding this, after firing the blast, without any measure of precaution nor examination of the hanging rider-coal, desiring to finish their shift's work without touching the rider-coal, they pushed a car on and began to load it. O'Rourke and Gingel were working right under the hanging coal, and presently it fell on them, killing the laborer and injuring the miner quite seriously. Evidently their intention was to leave the rider, with the extra work entailed to remove it, for the following shift to do. In fact, this accident was simply the natural consequence of a selfish policy and desire to evade the labor which naturally fell upon these men to perform.

Accident No. 78.—James Martin, a miner, was instantly killed in the No. 4 shaft, Plymouth, November 5, 1883. He and his laborer, George Polherine, were working at the face of the breast. A thick bench of fire-clay was hanging over their heads. Fred. Phillips, a neighbor miner, went to see them, and at once noticed and, remarked to them that the fire-clay was not safe. Martin replied that it was all right, and picking his drill up sounded it. Phillips exclaimed, "My God, its working! Come out!" and instantly it fell, crushing Martin to death underneath, and injuring the laborer—who happened to stand at the edge of it—slightly. Phillips only barely escaped.

Accident No. 79.—James Gunnen, a miner, was killed at the Hollenback shaft, Wilkes-Barre, November 5, 1883, while in the act of barring down a huge piece of top-coal. He was standing at the face, having a bar inserted vertically up a crack in the top coal, prying it down. When feeling the coal giving way, he called on his laborer to move back, and immediately after he attempted to pass out under it, and was struck down and instantly killed. If he had stayed where he was he would have been safe; but he evidently got too nervous, and made the attempt to escape too late.

Accident No. 80.—Dominick O'Boyle, a miner, was killed at the Raubville drifts, Mill Hollow, November 7, 1883. The deceased was employed robbing pillars along the Ross vein gangway. When the accident occurred

he was engaged laying boards on the ground to form a flooring, in order to make it easier to load the coal. His partner was close by drilling a hole in the upper side of gangway. There was a dangerous flake of rock hanging over O'Boyle, and he knew it, but thought it not worth while to pull it down, as the next hole would bring it when fired. The laborer would not work under it, being wisely afraid; so he was put at drilling while the miner did the required work under the dangerous rock, and was killed by its falling upon him.

ACCIDENT No. 84.—Neal Brannigan, a miner, was fatally injured in the Harry E. colliery, Kingston township, November 30, 1883, and died the same day. The deceased was one of the class of miners who put their props up sparsely, and always awkwardly, and who must be watched constantly and compelled to do their work as it should be done for their own safety. When the accident occurred he fired a blast, which knocked two props down, and he immediately and hastily went to work to replace them. While thus occupied the roof fell on him, resulting as stated. His props were in such shape that some of them were knocked down with every blast, and thus he was very frequently involved in danger.

Fatal Accidents by Falling Down Shafts.

There were no instances of persons falling down shafts last year that did not prove fatal, and twelve lost their lives from this cause in the following manner:

ACCIDENT No. 11.—Michael Moran, a night pump-man, was going to work in the Clear Spring shaft, about six o'clock, P. M., on February 14, 1883, and walked into the shaft and fell to the roof of the cage at the bottom. It was after quitting time, and no one witnessed the occurrence; a cage full of night men had just descended and were at the bottom when he fell. It was not ascertained whether these men had left the gate open or not, or whether he (the deceased) raised it and walked into the shaft, believing that the cage was standing at the landing.

ACCIDENT No. 20.—Henry W. Davies, a headman at the No. 4 shaft, Kingston, was descending on the bucket after dinner, March 27, 1883, and upon reaching the landing at the Cooper seam the bucket was stopped for him to step off. Having just descended from the sunlight, he could not see well enough; he made a mistake and stepped off on the wrong side and fell to the bottom, a depth of twenty-six feet. The men who were with him saw him committing his mistake, but too late to save him, and he was instantly killed.

ACCIDENT No. 40.—Thomas Gill, a sinker, while in the act of raising a platform in the Fuller shaft from one set of buntons to another, on June 17, 1883, thoughtlessly stepped backwards into the shaft and fell to the bottom, a depth of one hundred and six feet, and was instantly killed. This was his second day to work in this shaft, but he had followed this kind of work for years, and was considered an expert at the work.

Accident No. 41.—Andrew McHale, a door-boy, thirteen years of age, fell off the cage while ascending the Enterprise shaft, Plains township, June 23, and was instantly killed. His brother and seven or eight other persons were ascending on the same cage, but none of them could say how the boy fell. He was standing near the end of the cage, facing the side of shaft, and when up about one hundred and fifty feet, they saw him falling over the end, and in an instant was out of sight. The little boy was evidently made giddy by looking at the side of the shaft while ascending and for this reason, probably, fell.

Accident No. 54.—Mathew Lardner, a laborer, was killed by falling down a part of the Schooley shaft, near Wyoming, August 6, 1883. This shaft had just been completed sinking, and gangways were started in two seams, one one hundred and fifty feet above the other. Lardner had filled the bucket close by the edge of shaft, attached the rope to it, and signaled to hoist. While guiding it, he followed it too far, lost his balance, and fell headlong into the shaft. He had a long hook convenient for use in guiding the bucket, but he neglected to use it this time.

Accident Nos. 67, 68, 69, and 70.—Edward Phillips, Isaac Bevan, George Bugg, and Thomas Davies, all sinkers, were killed in the Woodward shaft, Kingston, September 22, 1883. At the time of this calamity, this shaft was at a depth of four hundred and seventy-five feet, and was well secured with timber to a point within one hundred feet of the bottom. The contractors were Messrs. David Griffiths and Thomas Williams. They had suspended the sinking work in order to timber that portion of the shaft below the point already secured. They began, as usual, at the bottom, putting twelve-inch timber all around the shaft, which is fifty-three feet long and twelve feet wide. Each pair of timber, called curbing, was braced by eight temporary cross-pieces, consisting of three-inch planks, which were to keep the curbing in position until the buntons were placed in position. Each of these cross-planks rested on two cleats, one under each end, nailed fast to the face of the curbing, and the planks were cut so as to fit tight between the curbing, but they were not nailed. The plankings used for platform were laid across these in such manner as required to make a substantial space of flooring to stand on to work. A space was generally left open in the center. They worked in this manner until they reached a point seventy-five feet up from the bottom of the shaft. About eleven o'clock on September 22, Lewis Jones, Phillip Parry, and the four men named above were working together, standing on a platform at this point. They were putting a set of curbing in place, had fixed the side-pieces, and were in the act of putting the end piece in position. It was fourteen feet long and twelve inches square, hanging to the engine rope. To get it over to the end of shaft it had to be swung twenty feet from vertical line of rope. One end was placed in position first, then this was left to rest on the side-curbing while all the men went to push the other end over to the shaft-end, the rope still attached. When doing this, the first end

slipped out of its place and swung over against the cross-plank, knocking it off the cleat, and all the platform and men went down except two, who fortunately landed on the cross-planks a few feet below, and clung to them until relief came from the men who were at the top of the shaft. The four that fell to the bottom were instantly killed, and their bodies were not all recovered until late in the afternoon, there being about fifteen feet of water in the bottom of the shaft, and it proved difficult to find the bodies. Three of these men had families in very destitute circumstance, but the sympathy of the people were fully aroused by the deplorable occurrence and they were liberally and kindly dealt with.

ACCIDENT Nos. 82 and 83.—John Lunson and Robert Richardson, both sinkers, were fatally injured in the Schooley air shaft, near Wyoming, November 28, 1883, and died shortly after the occurrence. There were nine men working in the shaft, and at twelve o'clock the head man called them up to dinner. The whole number rushed and climbed on to the bucket, and none of them would wait for another trip. They signaled to hoist without even waiting to have the bucket steadied, and when pulled up about thirty feet to a point where the cross-timber or buntons had been fixed, the bucket swung against them, knocking the above two men off, and precipitating them to the bottom with the result stated. The others were immediately lowered to rescue them, but the injury was done, and no power could save them from its consequences. The bucket was only thirty inches in diameter, and it was extremely reckless for nine men to attempt to ride up a shaft on it at once, and especially while it was swinging and turning as this was.

ACCIDENT No. 87.—Thomas Simons, a sinker, was working in No. 1 shaft, Nanticoke, with a party of men, standing on a platform about fifty feet above the bottom of the shaft, December 13, 1883. A large stone came loose from the side of the shaft, about five feet above the platform, and fell, breaking through the planks upon which the deceased was standing, and precipitating him to the bottom of the shaft, killing him instantly. The men knew that the stone was loose, but did not think it would fall out before they could fix another bunton, which they thought would support it in its position.

Fatal Accidents by Mine Cars Underground.

Fourteen fatal and fifty serious, but non-fatal, accidents occurred during the year 1883. The most of the victims were runners, drivers, and door-tenders. I need not describe them all, for they occurred precisely in the same manner as the most of this class described in former reports. I believe the number of this class of accidents could be reduced if it were possible to prevent persons from riding on the bumpers, on the fore end, and between cars. A number of door-boys were severely injured, and one was killed by following the drivers and helping them to do their work. This ought to be strictly forbidden by driver-bosses

until the boys are promoted to that work. The risk is great enough when each person is attending to his own duties strictly. The boys are ambitious, and aspire to become drivers as soon as they begin to work attending doors, and unless the government of a mine is good regarding the discipline, they soon begin to neglect their doors and follow the drivers. The fatal accidents are described as follows:

Accident No. 1.—Samuel R. Williams, assistant to locomotive engineer in the Nottingham mine, Plymouth, had his foot crushed January 2, 1883. It was amputated with fair hopes of saving his life; but he died January 10th. The accident occurred while he was sitting on the front end of the locomotive, taking a trip of cars into the gangway; and a loaded car, which had escaped a driver, from the passing branch, ran against them, and in the collision the young man's foot was literally crushed. The result was the loss of his life, as stated. The cause of the car running away from the passing branch was purely accidental.

Accident No. 5.—Thomas D. Jones, a runner, was fatally injured in No 1 shaft, Nanticoke, January 23, 1883, and died in three hours after the occurrence. While he was riding upon the bumper on the front end of an empty car going into a breast, the car jumped the track, ran against a prop and knocked it down. This caused a flat piece of rock to fall on its edge on the ground, and turned towards the boy jamming his head against the car. He was unconscious when released, and remained so until death relieved him of his pains.

Accident No. 8.—Thomas Moyles, a driver, was fatally hurt in a mysterious manner at the Diamond colliery, Wilkes-Barre, February 12, 1883, and died on the 19th. He was bringing a loaded car out from the airway and had come to the point where the car was to be left standing. A few feet in advance of his mule he was found lying on the track, but could not tell how he was injured. Just at the point where the car was standing there was a row of props standing eighteen inches off from the side of car, and the mining boss thought that, perhaps, he had been caught across his hips between the car and one of these prop; but, of course, this was only surmised, and the cause of the accident remains an unsolved mystery.

Accident No. 11.—Daniel McTague, a driver, was injured while working at night in the No. 5 shaft, Plymouth, February 17, and died the following day. He was bringing two loaded cars out on the gangway-road, which had a small descending grade at one section. He went between the two cars and tightened the brake of the first, when the second ran forward and squeezed him across the hips. He thought he was only slightly injured, but it resulted in his death as stated.

Accident No. 17.—Charles Vincent, a door-boy, was killed in the No. 1 shaft, Nanticoke, March 10, 1883. G. J. Williams, a runner, was bringing a loaded car out of a breast, and approaching the door and seeing no light, shouted to the boy twice, but failing to stop the car it ran against the door and tore it down. When the car was stopped the boy was found under it

dead. He was evidently approaching the door from the opposite side when the car struck it, and was thrown under the wheels and killed. He evidently had no light for his lamp was found without any wick in it. It is a dangerous practice to stay on the opposite side of a door from where the cars are expected to come, and this boy had been told several times to stay on the side where the runners were expected so he could see the cars coming.

ACCIDENT No. 23.—Thomas McCormick, a runner, was found dead on the underground slope, Henry colliery, Plains township, April 2, 1883. He walked up the slope just before the last trip of cars was left down for the day. In about five minutes after, the footman went up and found the deceased lying on his back, head towards top of slope, in the middle of the track, dead. He was subject to fits and convulsions, and the supposition is that he fell on the track in a fit before the trip went down the slope; the cars passing over him without injury to his person, but the cone on the rope had struck him on his forehead and killed him. There was no other mark of injury on his body. Prior to this accident the officials of the mine did not know that he was subject to fits; the fact had been concealed from them lest he should be prevented from working.

ACCIDENT No. 39.—David Morris, a laborer, was killed in the Nottingham mine, Plymouth, June 15, 1883. In the absence of a man who regularly attended a door on the locomotive road, the deceased was doing that work for this day, and when the last train of cars was being brought he happened to be on the wrong side of the door, and did not hear the cars in time to open it. He was approaching the door when the train struck it on the other side, knocking him and the door down under the cars, and killing him almost instantly.

ACCIDENT No. 51.—Thomas Ryan, a driver at the No. 11 or Lance shaft, Plymouth, was injured in a singular manner July 28, 1883, and died very soon after the accident. He hitched a mule to a couple of empty cars at the bottom of the shaft, and started with them into the gangway. In a few minutes he returned, and, upon seeing the footmen, exclaimed, "I am squeezed," and instantly fell to the ground unconscious, and he remained so until he died, about one hour later. Upon investigating the accident we found that the trace-chain of the mule had caught in a spike projecting out of one of the sills, and had held him there until the cars ran forward against him with such force as to break the chain. The deceased, who was riding on the bumper, was jammed between the car and mule, causing his death, as stated.

ACCIDENT No. 52.—Michael Monzinko, a laborer, was killed by runaway cars while walking up the underground slope in the Henry colliery, Plains township, August 3, 1883. He went up the slope, believing that they had stopped hoisting. The last trip, which was taken from a lift above, was being pulled up at that time, and the hook broke, letting the cars run back, jumping the track at the point where the unfortunate man happened to meet them.

Accident No. 55.—Edward Morgan, a laborer, seventy-two years old' was fatally injured, in a singular manner, in the Pine Ridge colliery, Plains township, August 31, 1883. He was cleaning road, and hearing a train of empty cars running in, he went behind a prop between two roads. The first car got off the track on a frog, a little distance back, and ran directly against the prop, knocking it down upon the old man, and jamming his head against the end of the pillar. His skull was fractured, causing his death the following day.

Accident No. 57.—Michael Burke, a driver, was instantly killed in the Clear Spring colliery, West Pittston, September 3, 1883. While waiting for a runner to run a loaded car down from a breast, he was playing with the door-boy and others a few feet outside of the door on the gangway, and upon hearing the car coming the door was opened, and Burke ran forward to meet the car, and was struck down and killed by it. He evidently thought it was farther off, and was struck down unexpectedly.

Accident No. 59.—Richmond Lewis, a door-boy, was instantly killed in the Pine Ridge colliery, Plains township, September 8, 1883. Having followed the driver to the face of airway, he was squeezed between the car and brattice, and was killed, as stated.

Accident No. 72.—Albert Evans, a runner at the No. 2 shaft, Nanticoke, was killed October 6, 1883. While running a car down a grade with brake, the lever of which was on the fore end, the car jumped the track and ran against a prop, jamming his head and killing him instantly. Through the peculiar arrangement of this colliery the brake-levers happen at the fore end of the cars nearly in all the places which make it very dangerous to run cars, because the brakemen have to stand on that end. The managers are trying to find a way to avoid this.

Accident No. 74.—Jeremiah Hurley, a driver, while engaged in coupling cars at the Bennett colliery, Plains township, October 16, 1883, his foot slipped, causing him to fall with his head between them, and his skull was fractured, resulting in his death October 21.

Accident No. 75.—William Williams, a driver, was fatally injured in the Dodson colliery, October 20, 1883. He and his brother John hitched a mule to a trip of two loaded cars at the bottom of the underground plane, and started it out. John was leading the mule and William was riding on the front end of the first car. After starting the cars, while taking position for unhitching, William fell on the track, and one car passed over him injuring him so severely that he died within a few hours after.

Accident No. 76.—Mathew Gray, a door-boy, was fatally injured at the Mill Creek colliery, Plains township, October 24, 1883. He was attending a door on a section pillar, where the track for a short distance had a grade of about six degrees. The runners brought a train of seven loaded cars to the top of the run, about forty feet above the door, and stopped them, and asked the door-boy if the gangway-road was clear. The boy ran down to see, and shouted "All right," whereupon the train of cars was run down.

It appears the boy had not opened the door quite when the cars struck it, knocking him down under the wheels and dragging him along as far as the cars ran. His injuries were very severe, causing his death on the same day. In this case the runners ought to have taken more time, and made sure that the boy was safe before starting the cars.

Fatal Accidents by Cars on the Surface.

ACCIDENT No. 4.—Henry Kettle, a footman, was fatally injured at the Chauncy colliery, January 22, 1883, and died January 24th. He was attending the foot of the breaker-plane. Upon starting to work, this cold frosty morning, the deceased sent a loaded car up the plane and was pushing another to the foot while the first was being hoisted. The chain broke leaving the car back against the one behind which Kettle was pushing, and he was severely injured, resulting as stated. He was cautioned to keep out of the way lest the chain was frozen and break, but he would not listen to it.

ACCIDENT No. 18.—C. F. Castner, a laborer, was killed by a runaway car at the foot of Gaylord breaker culm-plane, March 20, 1883. The head-boy neglected the head-block, letting a car run down the plane without attaching the rope to it, and it struck Castner at the bottom killing him instantly.

ACCIDENT No. 19.—Joseph Stopf, a driver, was walking along side of his mule taking culm car to the dump at Wyoming colliery, Plains township, March 23, 1883, and while unhitching the mule his foot slipped, throwing him under the car, and he was instantly killed.

ACCIDENT No. 85.—Phillip Kilroy, a door-boy, while out of the mine, noon hour, attempted to board a moving car at the Franklin colliery, Wilkes-Barre, December 7, 1883, fell under it and was fatally injured. Died the same evening.

Fatal Accidents by Explosions of Powder and Blasts.

Fourteen fatal, and sixteen non-fatal, accidents occurred from this cause. Some of these occurred in a mysterious manner. Shots fire upon lighting the squib, whether from a defect in the construction of the squib, or from the habit of cutting the matches too short, practiced by miners, we cannot tell. But it is very evident that extraordinary care should be taken in the manufacture of these indispensable contrivances, and that the miners should examine them carefully before using them, lest some dangerous defect lurk in its construction. Many accidents from blasts occur because the miners are too hasty, and will not wait a reasonable time for the match to burn. They return too soon, concluding that the squib has failed, or "missed."

ACCIDENT No. 6.—Henry Northcote, a miner, injured at the Midvale colliery, February 5, 1883. The accident occurred just as he was lighting the match. The blast fired, causing compound fracture of the thigh, and he

died from the shock after amputation of the limb at the hospital February 7.

ACCIDENT No. 16.—Thomas Curley, a miner, while returning to a blast, believing the first squib had missed, was severely injured at the Franklin mines March 7, and died at the hospital a week later. The shot fired just as he was approaching the face, and the full charge was thrown upon him.

ACCIDENT No. 22.—L. W. Casey, a miner, was burned by powder at the No. 1 slope, Nanticoke, March 30, and died April 3, 1883. He was preparing a charge of powder, and a spark flew from his lamp into it, exploding three full cartridges. He was only slightly burned on one of his sides and on one arm, but he walked out to the cold atmosphere without applying anything to protect his wounds. He changed his clothing at the engine-house outside, and went to a drug-store for oil. Then, after going home, thought it too warm in the kitchen, took off his clothes, and went naked down into the cellar to oil his wounds. The exposure thus entailed caused his death at the time stated.

ACCIDENT No. 25.—George Pritchard, a miner, was working on the night of April 12 in the Maltby colliery. While firing a blast cut the match too short, and, upon lighting it, the shot fired, throwing the coal against his side, causing fatal wounds, from which he died in four hours after.

ACCIDENT No. 26.—George Hynick, a laborer, while helping the miner, Michael Rustick, to charge a hole, was fatally injured at the Mill Creek colliery April 24, 1883. The shot fired while they were in the act of ramming in the tamping. Both were severely injured, but Hynick died April 24.

ACCIDENT No. 47.—John Lykofski, a laborer, ignited a keg full of powder in some unexplained manner immediately upon entering the mine at the No. 2 shaft, Plymouth, July 20, 1883, and soon after died. It was supposed that he attempted to pour the powder into his lamp. Having attended a Polish ball all night, was probably intoxicated, but no one can tell that with any certainty, nor how he fired the powder. He had taken the keg from the box, and had unscrewed the cork, which he had no business to meddle with. The oil was kept in another place.

ACCIDENT No. 45.—Henry Foley, a miner, was killed in the Hollenback colliery, Wilkes-Barre, July 2, 1883. He and John Kinney, both miners, had prepared two holes to blast, one on each side of the breast, and they attempted to fire both together. Upon retiring to a safe place, one shot exploded, and, believing the other had "missed," both miners returned together to the face. Seeing that Foley's shot had not exploded, he (Foley) approached it, intending to try another squib, and the shot fired as he was approaching it, resulting as stated.

ACCIDENT No. 49.—John Murray, a miner, while trying to ram a cartridge which was too large to enter the hole, exploded it, and was fatally injured at the Pine Ridge colliery, July 24, 1883. Those who witnessed

the accident said that Murray acted very recklessly. He died at the hospital July 27.

ACCIDENT No. 58.—Thomas Maley, a laborer, working with Edward Deets, a miner, at the Reynolds colliery, Plymouth, was instantly killed September 5, 1883. Maley had been working ten days only in the coal mines. He could not speak nor understand English. The miner was called out of the mine at noon on business of importance, leaving the laborer in to load the loose coal. While he was loading a car during afternoon the party working the adjacent breast fired a shot on the pillar, which burst through and killed him. The parties who fired the blast gave the usual alarm, but the Polish laborer did not know what it meant, and remained at his work until it fired and killed him.

ACCIDENT No. 63.—John Roderick, a miner, was instantly killed at the Wyoming colliery, Plains township, September 18, 1883. He and his partner, George Norman, had a hole ready to blast, and while Roderick was adjusting the squib it fired, killing him on the spot. Norman narrowly escaped without injury.

ACCIDENT No. 64.—Thomas Daugherty, a miner, was fatally injured in the Clear Spring colliery, West Pittston, September 18, 1883. He drilled a hole from top of the bottom bench down, nearly vertical, to the depth of two and a half feet, charged it with five inches of powder, and, when ready to fire, he untwisted the sulphur match attached to the squib, and the shot exploded upon applying fire to the match. He did not have time to move a step, and was severley injured; lived only about two hours after.

ACCIDENT No. 65.—John Greenage, a miner, was severely burned by an explosion of powder in the East Boston mines, Kingston township, September 18, 1883. He had his lamp on his head while filling a cartridge with powder, and it set his hat on fire. The full keg of powder was on his lap with the cork out, a cartridge in his left hand, and, while trying to extinguish his burning hat with the other hand, caused a spark to fly into the powder and explode it. He was severely injured, and was removed promptly to the hospital, where he died the following day.

ACCIDENT No. 81.—Michael Bartcoviack, a laborer, was killed in the West End colliery, at Coalmont, November 12, 1883. He was working on the night-shift, with John Eskoles, a miner, both Polanders, and John Koller, a Hungarian. While in the act of tamping a hole, the powder exploded, killing Bartcoviack instantly, and injuring the other two men severely. There were no persons in the mine when this accident happened besides them and the driver. The latter procured help for them as soon as possible after the accident occurred, and the two injured persons were sent to the Wilkes-Barre hospital for treatment.

ACCIDENT No. 88.—John Sullivan, a miner, was severely hurt at the Fuller colliery, Kingston township, December 15, 1883. While preparing a charge of dynamite, and meddling with a supposed *poor cap*, it exploded, its concussion exploding also about ten cartridges of dynamite, and half a

keg full of blasting-powder, injuring him so that he died during the following day.

Fatal Accidents from Miscellaneous Causes Underground.

Accident No. 12.—Thomas Griffiths, a sinker, was instantly killed in the Alden shaft, Newport township, February 19, 1883. When this accident happened, the shaft was at a depth of two hundred and twenty-five feet, having a cage working in one compartment, and a bucket loaded with rock in the other. The company having concluded to sink the shaft to a deeper vein, contracted the work to Griffiths. He went to work and made two water-sheds of boards in the shaft to catch the water, leaving just sufficient room for the bucket to pass through. Upon completing the sheds, he and three other men went to work cleaning the bottom of the shaft. The loaded bucket, when descending, caught on the edge of one of the water-sheds, causing it to capsize and empty its contents down upon the men at the bottom of the shaft. Griffiths was killed, but the others fortunately escaped.

Accident No. 15.—Henry Nauss, a laborer, was killed at the foot of the Dodson shaft, March 7, 1883. A cage full of planks had been sent down the shaft, and immediately after they were taken off at the bottom a crowd of men rushed on the cage before the roof was adjusted. A piece of ice becoming loose from the side of the shaft above, fell and struck Nauss, killing him instantly.

Accident No. 27.—Stantanty Patalone, a Polish laborer, was found dead in the cage-pit at the bottom of No. 2 shaft, Nanticoke, on the morning of April 25, 1883. He was at work in his place late on the previous day, but did not go home all night, and his body was found early next morning under one of the cages. Subsequent investigation failed to discover the cause of his death, although every effort was made to that effect. It was supposed that while being hoisted up the shaft late the previous evening, when nobody was around, he fell off the cage; but the affair is shrouded in mystery, and every explanation presented hitherto is merely a supposition, with no evidence of truth to support it.

Accident No. 50.—John E. Hughes, a miner, upon firing a very strong blast of dynamite in a small shaft in the Wyoming colliery, Plains township, July 25, 1883, went down too soon after blasting, before the noxious gases had dissipated, and he was suffocated. He was an experienced workman, but not acquainted with the effects of the products of high explosives.

Accident No. 86.—Peter Lynch, a driver, was kicked upon the abdomen by a mule in the Prospect shaft, December 8, 1884. He was taken to the hospital, and died there the following day.

Fatal Accidents from Miscellaneous Causes on Surface.

ACCIDENT No. 21.—John H. Smith, a laborer, employed at the Diamond breaker, was killed March 27, 1883. His work was keeping the mud-screens from clogging, but about 3 o'clock, P. M., on that day he left his work and went around the end of the screens, crossed the chute, and when approaching a pair of cog-wheels, his clothing caught, and he was pulled into the machinery which killed him almost instantly. He had no business to go where he went, apparently, and no one could explain what induced him to go there.

ACCIDENT No. 24.—A. R. Chamberlain, a laborer, was killed at the Harry E. breaker April 10, 1883. The deceased and the outside foreman were conversing together regarding some contemplated changes in the breaker. Both were standing on one of the telegraph-chutes. There was a pair of cog-wheels revolvidg behind Chamberlain, about three feet high from the ground upon which he was standing. He wore a long-tailed coat, and this caught in the cog-wheels and pulled him on to them instantly. Mr. Walters made efforts to save him, but of no avail, for his side got into the wheels before the machinery stopped. He died almost instantly from the injuries received.

ACCIDENT No. 38.—Michael Duffy, a laborer, fell from the top of a railroad car, where he was employed leveling the coal, and landing on the track rail, fractured his skull and broke his neck, at the No. 4 breaker, Plymouth, May 24, 1883. He died in a few minutes after he fell.

ACCIDENT No. 42.—George Hooper, a slate-picker, aged nine years, was killed at the Enterprise colliery June 27, 1883. He went from the breaker on business, and while passing across the railroad his brother Thomas had a team of horses hitched to two cars, and was starting them forward. Just at that moment George was trying to climb across between the cars, and fell under the last one. His brother heard him scream, and stopped at once, but the injury was done, and the unfortunate little fellow died within an hour after.

ACCIDENT No. 44.—Henry James, a slate-picker, aged ten years, was fatally injured at the No. 1 Red Ash breaker, Wilkes-Barre, June 27, 1883, and died thereof in two hours after.

The coal was unusually wet coming from the mine, causing the fine meshes of the counter-screen to become frequently clogged with culm. Young James was placed to stand outside the guard-rail to hold a wire broom on the screen to keep its meshes free of culm. Getting tired standing, he attempted to sit on the rail, and his clothing caught in the screen, dragging him upon it and crushing him against the frame on the opposite side. The result was as stated above.

ACCIDENT No. 62.—John S. Jenkins, outside foreman at the Fuller Coal Company's colliery, Kingston township, was fatally injured September 14,

1883, and died September 17. A long lever, adjusted to a rectangular frame, was used to dump the rock-cars on the dump, and while Jenkins was trying to teach a Hungarian stranger how to use it in dumping a rock-car, and believing the Hungarian had hooked the chain attached to the short arm of the lever to the car, he (Jenkins) pulled the long arm of the lever off its balance down upon his head, fracturing his skull, and causing his death at the time stated.

TABLE No. 5.—*A list of accidents resulting in death in the Middle District of Lu dent, for the year end*

DATE.	No. of accidents.	Names of Persons Killed.	Age.	Widows.	Orphans.	Nationallty	Occupation.	Names of the Collieries.
Jan. 2	1	Sam'l R. Williams,	17	. .	. .	Welsh, . .	Loco. runner,	Nottingham, ...
11	2	James Thomas, . .	43	1	5	Welsh, . .	Miner, ...	East Boston, ...
17	3	Joseph Inch, . . .	46	. .	1	English, .	Miner, ...	No. 4 Shaft, Plymouth, . .
22	4	Henry Kettle, . . .	55	. .	. .	American,	Footman, . .	Chauncey, ...
23	5	Thomas D. Jones, .	20	. .	. .	Welsh, . .	Runner, . . .	No. 1 Shaft, Nanticoke, . .
Feb 5	6	Henry Northcote,	36	. .	. .	English, .	Miner, ...	Midvale, ...
8	7	Peter Peterson, .	26	1	. .	Swedish, .	Miner, ...	Midvale, ...
12	8	Thomas Moyles, .	18	. .	. .	Irish, . . .	Driver, ...	Diamond, ...
13	9	David Waters, . .	41	. .	. .	English, .	Miner, ...	Black Diamond, ...
15	10	Michael Moran, . .	.	1	6	Irish, . .	Pumper, . . .	Clear Spring, ...
17	11	Daniel McTague, .	15	. .	. .	American,	Driver, ...	No. 5, Plymouth, ...
19	12	Thomas Griffith, .	50	1	6	Welsh, . .	Sinker, ...	Alden, ...
27	13	Morgan Evans, . .	38		. .	Welsh, . .	Miner, ...	Exeter, ...
28	14	Lewis Griffiths, . .	55	1	3	Welsh, . .	Miner, ...	Grand Tunnel, ...
Mar. 7	15	Henry Nauss, . .	33	1	3	German, .	Laborer, . . .	Dodson, ...
7	16	Thomas Curley, . .	40	1	5	Irish, . . .	Miner, ...	Franklin, ...
10	17	Charles Vincent, .	13	. .	. .	Polish, . .	Door-boy, . .	No. 1 Shaft, Nanticoke, . .
20	18	C. F. Castner, . . .	24	. .	. .	American,	Laborer, . . .	Gaylord, ...
23	19	Joseph Stopf, . . .	19		. .	Hungarian	Driver, ...	Wyoming, ...
27	20	Henry W. Davies,	26	1	. .	Welsh, . .	Headman, . .	No. 4 Shaft, Kingston, .
27	21	John H. Smith, . .	17	.	.	American,	Laborer, . . .	Diamond Breaker, . . .
30	22	L. W. Casey, . . .	30	1	3	Irish, . . .	Miner, ...	Slope No. 1, Nanticoke, .
April 2	23	Thos. McCormick,	23	. .	. .	Irish, . . .	Runner, . . .	Henry, ...
10	24	A. R. Chamberlain,	32	1	. .	American,	Laborer, . .	Harry E. Breaker, ...
12	25	George Pritchard,	40	. .	.	English, .	Miner, ...	Maltby, ...
24	26	George Hynick, . .	34	1	4	Hungarian	Laborer, . .	Mill Creek, ...
25	27	Stan. Patalone, . .	35	1	. .	Polish, .	Laborer, . . .	No. 2 Shaft, Nanticoke, . .
27	28	John Stevenson, .	13	. .	. .	American,	Door-boy, . .	Harry E, ...
May 4	29	Edward Rinker, .	38	1	. .	American,	Carpenter, . .	Dorrance, ...
4	30	Henry Baker, . . .	36	1	5	German, .	Carpenter, . .	
9	31	William J. Davies,	22	. .	. .	Welsh, . .	Laborer, . . .	No. 2 Shaft, Nanticoke, . .
10	32	John Maguire, . .	21	. .	. .	Irish, . . .	Footman, . .	Hanover Colliery, ...
10	33	Barny Nevin, . . .	24	. .	. .	Irish, . . .	Laborer, . . .	
18	34	Phillip Bath, . .	35	1	5	Welsh, . .	Miner, ...	Clear Spring, ...
19	35	Joseph Williams, .	23	1	. .	English, .	Miner, ...	Enterprise, ...
21	36	Gomer Evans, . .	13	. .	. .	Welsh, . .	Door-boy, . .	Mineral Spring, ...
21	37	James Colleran, . .	16	. .	. .	Irish, . . .	Driver, ...	
22	38	Michael Duffy, . .	50	. .	. .	Irish, . . .	Laborer, .	No. 4 Breaker, Plymouth,
June 15	39	David Morris, . . .	58	1	. .	Welsh, . .	Door-tender,	Nottingham, ...
17	40	Thomas Gill, . .	33	1	1	English, .	Sinker, . .	Fuller Coal Company, . .
23	41	Andrew McHale, .	13	. .	. .	Irish, . .	Door-boy,	Enterprise, ...
27	42	George Hooper, . .	9	. .	. .	English, .	Slate-picker, .	Enterprise, ...
27	43	Evan Protheroe, .	55	. .	. .	Welsh, . .	Miner, ...	Nottingham, ...
27	44	Henry James, . . .	10	. .	. .	English, .	Slate-picker, .	No. 1, Red Ash Coal Co., .
July 2	45	Henry Foley, . . .	36	1	8	Irish, . . .	Miner, ...	Hollenback, ...

zerne and Carbon counties, Pennsylvania, with remarks on the cause of each acci-ing December 31, 1883.

Remarks on the Causes of the Accidents.	Causes of the Accidents.								No. of accidents.
	Explosions of CH4 gas.	Falling of roof and coal.	Falling down shafts.	Crushed by mine cars.	Explosions of powder and blasts.	Miscellaneous underground.	On surface.	Total.	
Foot crushed in a collision of locomotive and a car; after amputation was effected he died January 10,				1				1	1
Fatally injured by a fall of coal, and died within two hours after,		1						1	2
Instantly killed by a fall of rock from top,		1						1	3
Fatally injured by a runaway car at foot of breaker plane; died January 24,							1	1	4
He was riding on front end of car, it jumped the track, knocking a prop out, and the roof fell on him with fatal effects; he died within three hours after that,		1						1	5
Leg crushed by a premature blast, so that amputation was necessary; died February 7,					1			1	6
Instantly killed by a fall of coal in face of chamber,		1						1	7
Hips injured by being jammed between car and prop; died February 19,				1				1	8
Instantly killed by a large fall of coal in face of chamber,		1						1	9
Instantly killed by falling into the shaft,			1					1	10
Severely injured by being jammed between cars; died February 18,				1				1	11
Instantly killed by the bucket capsizing and emptying its contents upon him in the shaft,						1		1	12
Instantly killed by a fall of "black rock,"		1						1	13
Fatally injured by a fall of coal; died the same day,		1						1	14
Instantly killed by a piece of ice falling from the side of the shaft upon him,						1		1	15
Skull fractured by a blast; died at the hospital in about a week after,					1			1	16
Instantly killed by cars running upon him,				1				1	17
Instantly killed by a runaway car at bottom of dirt-plane,							1	1	18
Killed by falling under the culm car,							1	1	19
Instantly killed by falling off the bucket down the shaft,			1					1	20
Killed by being caught in machinery of breaker,							1	1	21
A spark flew from his lamp and exploded a cartridge full of powder, burning him slightly; not taking proper care of himself, he died April 3, 1883,					1			1	22
Fell under cars while in a fit, and was dead when found lying on the slope,				1				1	23
Killed by going too close to cog-wheels in the breaker, and was dragged into them,							1	1	24
Fatally injured by a premature blast; died the same day,					1			1	25
Severely injured by premature blast; died April 26,					1			1	26
Found dead under the cage at bottom of shaft, having been there since some time in the night,						1		1	27
Killed by a fall of slate on the gangway, about 150 feet from his door,		1						1	28
Both were fatally burned by an explosion of gas while they were in the act of plumbing to get the center of guides on top of tower; it is supposed Rinker struck a match and exploded gas happening to be in the shaft at that time,	1								29
	1							2	30
Fatally burned by an explosion of gas; died the following morning,	1							1	31
Both were instantly killed by a fall of rock near the bottom of the slope immediately after descending the mine in the morning,		1						1	32
		1						1	33
Instantly killed by a fall of a bell-shaped rock,		1						1	34
Instantly killed by a fall of coal; returning too soon after blasting,		1						1	35
Went into an abandoned chamber to get water for a miner, and came in contact with a body of gas and exploded it, and both were killed,	1							1	36
	1							1	37
Killed by falling from a railroad car while leveling the coal on top of it,							1	1	38
Killed by the locomotive train while in the act of opening the door,				1				1	39
Instantly killed by falling down the shaft,			1					1	40
Killed by falling off the cage while ascending the shaft,			1					1	41
Killed by falling under railroad cars while trying to pass them near the breaker,							1	1	42
Instantly killed by a fall of rock,		1						1	43
Fatally injured by being caught by a revolving screen in breaker; died in a few hours,							1	1	44
Instantly killed by a blast when approaching it, believing it missed fire,					1			1	45

TABLE No. 5—

DATE.	No. of accidents.	Names of Persons Killed.	Age.	Widows.	Orphans.	Nationality	Occupation.	Names of the Collieries.
July 9	46	John H. Evans, . .	25	. .	. .	Welsh, . .	Miner, ...	No. 1 Shaft, Kingston, . .
20	47	John Lykoski, . .	22	. .	. .	Polish, .	Laborer, . . .	No. 2 Shaft, Plymouth, . .
23	48	John Brislin, . . .	45	. .	. .	Irish, . . .	Miner, ...	No. 1 Shaft, Nanticoke, .
24	49	John Murray, . .	50	1	4	Irish, . . .	Miner, ...	Pine Ridge, ...
25	50	John E. Hughes, .	29	1	3	Welsh, . .	Miner, ...	Wyoming Shaft, ...
28	51	Thomas Ryan, . .	18	. .	. .	Irish, . . .	Driver, ...	Lance, No. 11, ...
Aug. 3	52	Michael Monzinko,	32	†	. .	Hungarian	Laborer, . . .	Henry, ...
3	53	John Bloom, . . .	23	. .	. .	Polish, . .	Laborer, . . .	Dodson, ...
6	54	Matthew Lardner,	24	. .	. .	Irish, . . .	Laborer, . . .	Schooley, ...
31	55	Edward Morgan, .	72	. .	. .	Welsh, . .	Laborer, . . .	Pine Ridge, ...
Sept. 1	56	A. Chickochufski,	35	‡	. .	Polish, . .	Miner, ...	Tunnel 4, Nanticoke, . .
3	57	Michael Burke, . .	17	. .	.	Irish, . . .	Driver, ...	Clear Spring, ...
5	58	Thomas Maley, . .	28	. .	. .	Polish, . .	Laborer, . . .	Reynolds, ...
8	59	Richmond Lewis, .	15	. .	. .	Welsh, . .	Door-boy, . .	Pine Ridge, ...
11	60	Charles Absalom, .	16	. .	. .	Welsh, . .	Driver, ...	No. 1 Slope, Nanticoke, .
12	61	Thomas John, . . .	32	1	. .	Welsh, . .	Miner, ...	Bennett, ...
14	62	John S. Jenkins, .	40	1	. .	American,	Foreman, . .	Fuller Coal Company, . .
18	63	John Roderick, . .	28	. .	. .	Welsh, . .	Miner, ...	Wyoming, ...
18	64	Thos. Dougherty, .	40	. .	. .	Irish, . .	Miner, ...	Clear Spring, ...
18	65	John Greenage, . .	63	1	. .	English, .	Miner, ...	East Boston, ...
21	66	Ivan R. Walters, .	37	1	. .	Welsh, . .	Miner, ...	Reynolds, ...
22	67	Edward Phillips, .	36	1	7	Welsh, . .	Sinker, ...	Woodward, ...
22	68	Isaac Bevan, . . .	30	1	2	Welsh, . .	Sinker, . . .	
22	69	George Bugg, . . .	28	1	3	English, .	Sinker, ...	
22	70	Thomas Davis, . .	22	. .	. .	Welsh, . .	Sinker, ...	
27	71	Matthew Tully, . .	17	. .	. .	American,	Driver, ...	Stanton, ...
Oct. 6	72	Albert Evans, . . .	23	. .	. .	Welsh, . .	Runner, . . .	No. 2 Shaft, Nanticoke, .
16	73	Michael O'Rourke,	22	. .	. .	American,	Laborer, . .	Fuller Coal Company, . .
16	74	Jeremiah Hurley,	16	.	. .	Irish, . . .	Driver, ...	Bennett, ...
20	75	William Williams,	17	. .	. .	Welsh, . .	Driver, ...	Dodson, ...
24	76	Matthew Gray, . .	12	. .	. .	English, .	Door-boy, . .	Mill Creek Slope, ...
Nov. 5	77	John Barrett, . . .	29	1	.	Irish, . . .	Miner, ...	Enterprise, ...
5	78	James Martin, . . .	44	1	4	Irish, . . .	Miner, ...	No. 4, Plymouth, ...
5	79	James Guunen, . .	45	1	1	Irish, . . .	Miner, ...	Hollenback Shaft, ...
7	80	Dominick O'Boyle,	34	1	7	Irish, . . .	Miner, ...	Raubville Drifts, ...
12	81	Mich. Bartcoviack,	35	1	2	Polish, . .	Laborer, . . .	West End Colliery, ...
28	82	John Lunson, . . .	37	1	1	English, .	Sinker, . . .	Schooley Air-Shaft, . . .
28	83	Robt. Richardson,	40	W	1	English, .	Sinker, ...	
30	84	Neal Brannegan, .	55	1	. .	Irish, . . .	Miner, ...	Harry E., ...
Dec. 7	85	Phillip Kilroy, . .	13	. .	. .	American,	Door-boy, . .	Franklin, ...
8	86	Peter Lynch, . . .	17	. .	.	Irish, . . .	Driver, . . .	Prospect, ...
13	87	Thomas Simons, .	43	1	6	English, .	Sinker, ...	No. 1 Shaft, Nanticoke, .
15	88	John Sullivan, . .	28	. .	.	Irish, . . .	Miner, ...	Fuller Colliery, ...
	*89	Totals, ...	. .	36	95			

*Francis Corcoran, seriously injured on February 14, died at the Wilkes-Barre hospital February 19. See list of accidents; adding this would make the fatal accidents 89.
†Wife in Hungary. ‡Wife in Poland.

Continued.

Remarks on the Causes of the Accidents.	Causes of the Accidents.								No. of accidents.
	Explosions of CH_4 gas.	Falling of roof and coal.	Falling down shafts.	Crushed by mine cars.	Explosions of powder and blasts.	Miscellaneous underground.	On surface.	Total.	
Fatally injured by a fall of bone-coal, and died the following day,	. .	1	. .	. .	. .	. .	. .	1	46
Fatally burned by exploding a keg full of powder; died at the hospital July 25,	. .	. .	. .	. .	1	. .	. .	1	47
Face, hands, and shoulder burned by fire-damp; died at the hospital, in Wilkes-Barre, July 29,	1	. .	. .	. .	. .	. .	. .	1	48
Fatally injured by a premature blast; died at the hospital July 27,	. .	. .	. .	. .	1	. .	. .	1	49
Suffocated by descending a small shaft too soon after firing a dynamite blast,	. .	. .	. .	. .	. .	1	. .	1	50
Squeezed between a car and mule, causing death within an hour,	. .	. .	. .	1	. .	. .	. .	1	51
Instantly killed by runaway car on the underground slope,	. .	. .	. .	1	. .	. .	. .	1	52
Instantly killed by a fall of top coal,	. .	1	. .	. .	. .	. .	. .	1	53
Instantly killed by falling down the shaft,	. .	. .	1	. .	. .	. .	. .	1	54
Skull fractured by a discharged prop striking him; died the following day,	. .	. .	. .	. .	. .	1	. .	1	55
Killed by a fall of coal while working in face of a breast,	. .	1	. .	. .	. .	. .	. .	1	56
Instantly killed by falling under a loaded car,	. .	. .	. .	1	. .	. .	. .	1	57
Killed by a blast bursting through the pillar from the adjoining breast,	. .	. .	. .	. .	1	. .	. .	1	58
Crushed between a car and brattice in gangway, and was instantly killed,	. .	. .	. .	1	. .	. .	. .	1	59
Instantly killed by a piece of rock falling upon him while passing in on the gangway,	. .	1	. .	. .	. .	. .	. .	1	60
Almost instantly killed by a fall of rider-coal in the face of breast,	. .	1	. .	. .	. .	. .	. .	1	61
Struck upon his head by a lever while trying to teach a Hungarian to dump rock, and died from its effects September 17,	. .	. .	. .	. .	. .	. .	1	1	62
Instantly killed by a premature blast,	. .	. .	. .	. .	1	. .	. .	1	63
Fatally injured by a premature blast; died within two hours,	. .	. .	. .	. .	1	. .	. .	1	64
Exploding a keg full of powder in his arms, was burned fatally, and died at the hospital, in Wilkes-Barre, September 19,	. .	. .	. .	. .	1	. .	. .	1	65
Instantly killed by a fall of rock in face of an airway,	. .	1	. .	. .	. .	. .	. .	1	66
These four men were killed by a platform giving way, letting them fall a depth of about seventy-five feet. They were standing upon this platform to work, and by a mishap a heavy piece of timber slipped and displaced the cross-piece upon which the scaffold rested,	. .	. .	1	. .	. .	. .	. .	. .	67
	. .	. .	1	. .	. .	. .	. .	. .	68
	. .	. .	1	. .	. .	. .	. .	. .	69
	. .	. .	1	. .	. .	. .	. .	4	70
Instantly killed by a fall of coal in face of a breast,	. .	1	. .	. .	. .	. .	. .	1	71
Killed while riding on a brake-lever before the car; car got off the track, crushing him against a prop,	. .	. .	. .	1	. .	. .	. .	1	72
Instantly killed by a fall of rider-coal in the gangway face,	. .	1	. .	. .	. .	. .	. .	1	73
Head jammed while coupling cars, and died October 21, 1883,	. .	. .	. .	1	. .	. .	. .	1	74
Fatally injured by falling under cars; died the same day,	. .	. .	. .	1	. .	. .	. .	1	75
Fatally injured by cars running over him; died the same day,	. .	. .	. .	1	. .	. .	. .	1	76
Burned by an explosion of a small quantity of fire-damp; died November 11,	1	. .	. .	. .	. .	. .	. .	1	77
Instantly killed by a fall of fire-clay roof,	. .	1	. .	. .	. .	. .	. .	1	78
Instantly killed by a fall of top coal,	. .	1	. .	. .	. .	. .	. .	1	79
Instantly killed by a fall of rock,	. .	1	. .	. .	. .	. .	. .	1	80
Instantly killed by a premature blast; his two partners were severely injured at the same time,	. .	. .	. .	. .	1	. .	. .	1	81
Both fatally injured, and died within a few hours after the accident. Nine men were ascending the shaft upon a bucket, and not having taken the precaution of steadying the bucket, it struck a bunton and threw these two men off, who fell about thirty-five feet to the bottom of shaft,	. .	1	. .	. .	. .	. .	. .	. .	82
	. .	1	. .	. .	. .	. .	. .	2	83
Fatally injured by a fall of rock; died soon after the accident,	. .	1	. .	. .	. .	. .	. .	1	84
Attempted to board a moving car and fell under; was fatally injured, and died the same day,	. .	. .	. .	. .	. .	. .	1	1	85
Kicked in the abdomen by a mule; died the following day,	. .	. .	. .	. .	. .	1	. .	1	86
Scaffold broke, precipitating him into the shaft and was killed,	. .	. .	1	. .	. .	. .	. .	1	87
Fatally injured by exploding some powder and dynamite,	. .	. .	. .	. .	1	. .	. .	1	88
Totals,	7	25	12	14	14	6	10	88	

TABLE No. 6.—*A list of serious but non-fatal accidents in the Middle district of accident, for the year*

DATE.	Number of accidents.	Names of Persons Injured.	Age.	Wife.	Children.	Nationality	Occupation.	Names of the Collieries.
Jan. 3	1	James Flynn, . . .	14	. .	. .	Irish, . . .	Door-tender,	Dodson, ...
4	2	John Hughes, . . .	29	1	3	Welsh, . .	Miner, ...	Wyoming, ...
4	3	Thomas Gilboy, . .	22	. .	. .	Irish, . . .	Runner, . . .	Nottingham, ...
5	4	M. P. Flynn, . . .	24	. .	. .	Irish, . . .	Miner, ...	Exeter, ...
6	5	Daniel Morgan, . .	16	. .	. .	Welsh, . .	Laborer, . . .	No. 1 Shaft, Nanticoke, .
10	6	Cornelius Ryan, .	15	. .	. .	Irish, . . .	Driver, ...	Midvale, ...
11	7	John Kelly, ...	34	1	3	Irish, . . .	Miner, ...	Enterprise, ...
15	8	Thomas Martin, . .	13	. .	. .	Irish, . . .	Slate-picker, .	No. 2 Breaker, Plymouth,
17	9	James Harris, . . .	39	1	. .	Welsh, . .	Laborer, . . .	No. 2, Red Ash, ...
23	10	John D. Jones, . .	15	. .	. .	Welsh, . .	Driver, ...	Wyoming, ...
Feb. 6	11	Peter Tigue, . . .	12	. .	. .	American,	Door-tender,	Forty-Fort, ...
6	12	John Williams, . .	44	. .	. .	Welsh, . .	Sinker, ...	Woodward Air-Shaft, . . .
7	13	Peter Jacobson, . .	32	1	. .	Swede, . .	Miner, ...	Prospect, ...
7	14	Joseph Long, . . .	30	1	. .	German, . .	Footman, . .	Empire, ...
8	15	Herbert Hunter, .	21	1	. .	English, .	Miner, ...	No. 4, Plymouth, ...
8	16	John S. Jones, . .	45	1	4	Welsh, . .	Timberman, .	Empire, ...
10	17	Matthew Kelly, .	16	. .	. .	American,	Driver, ...	Enterprise, ...
12	18	William Pearson,	14	. .	. .	American,	Driver, ...	Wyoming, ...
13	19	Thomas Taylor, . .		. .	. .	Irish,	Laborer, . .	Empire, ...
14	20	John Clifford, . . .	20	. .	. .	American,	Runner, . . .	No. 2 Shaft, Nanticoke, . .
14	21	Francis Corcoran,	45	1	6	Irish, . . .	Laborer, . . .	No. 2 Shaft, Nanticoke, . .
19	22	Edw. O. Williams,	24	. .	. .	Welsh, . .	Laborer, . . .	Franklin, ...
21	23	Frank Picar, . . .	29	. .	. .	Polish, . .	Laborer, . . .	No. 4 Slope, Nanticoke, . .
24	24	William Willis, . .	. .	. .	. .	English, .	Driver, ...	No. 2 Slope, Nanticoke, . .
28	25	Martin Vinifski, .	26	. .	. .	Polish, . .	Laborer, . . .	Grand Tunnel, ...
March 1	26	Andrew Bucklet, .	20	. .	. .	Hungarian	Laborer, . . .	No. 4 Slope, Nanticoke, . .
1	27	Charles J. Dore, .	21	1	. .	Welsh, . .	Miner, ...	No. 1 Shaft, Kingston, . .
3	28	Abram Jenkins, .	22	. .	. .	Welsh, . .	Runner, . . .	No. 1 Shaft, Nanticoke, . .
7	29	Myles Burk, ...	27	. .	. .	Irish, . .	Miner, ...	Hartford, ...
9	30	James Roscoe, . .	30	. .	. .	Hungarian	Laborer, . . .	No. 2 Shaft, Kingston, . .
13	31	Michael McGuire,	17	. .	. .	Irish, . . .	Driver, ...	Enterprise, ...
14	32	David Morris, . . .	45	1	7	Welsh, . .	Miner, ...	Grand Tunnel, ...
19	33	John Rhodda, . .	31	1	2	English, .	Miner, ...	No. 4 Slope, Nanticoke, . .
19	34	John Smolinski, .	24	1	1	Polish, . .	Laborer, . . .	No. 4 Slope, Nanticoke, . .
19	35	Christian Rose, . .	24	1	1	American,	Laborer, . .	Exeter, ...
20	36	Frank McCormick,	18	. .	. .	Irish, . . .	Driver, ...	Gaylord, ...
24	37	David J. Davies, .	26	. .	. .	Welsh, . .	Miner, ...	Nottingham, ...
26	38	George Ramsay, .	40	1	3	English, .	Miner, ...	Bennett, ...
27	39	Pat. O'Donnell, .	37	1	. .	Irish, . . .	Laborer, . .	Baltimore Tunnel, ...
27	40	Wm. E. Thomas, .	50	1	10	Welsh, . .	Laborer, . . .	Conyngham, ...
19	41	John Quinn, ...	28	. .	. .	Irish, . . .	Laborer, . . .	Pine Ridge, ...
28	42	David T. Jones, . .	39	1	7	Welsh, . .	Miner, ...	Wyoming, ...
28	43	George Norman, .	37	1	4	Welsh, . .	Miner, . . .	Wyoming, ...
28	44	David Thomas, .	20	.	. .	Welsh, .	Laborer, . . .	Wyoming, ...
28	45	John H. Thomas, .	38	1	8	Welsh, . .	Miner, ...	Wyoming, ...
28	46	Wm. H. Williams,	24	. .	. .	Welsh, . .	Laborer, . . .	Wyoming, ...
28	47	Edward Coslet, . .	18	. .	. .	Welsh, .	Driver, ...	Reynolds, ...
30	48	Hugh Conroy, . .	25	. .	. .	Irish, . . .	Miner, ...	No. 1 Slope, Nanticoke, . .
31	49	Philip Belger, . . .	43	1	4	Irish, . . .	Miner, ...	Mineral Spring, ...
31	50	Albert Downes, . .	19	. .	. .	English, .	Driver, ...	Laurel Run, ...
April 2	51	James Kinney, . .	40	1	4	Irish, . . .	Miner, ...	No. 4, Plymouth, ...
2	52	James McNeil, . .	37	1	3	Irish, . . .	Miner, ...	Hartford, ...

Luzerne and Carbon counties, Pennsylvania, with remarks on the cause of each ending December 31, 1883.

Remarks on Extent of Injury and Cause of Accidents.	Explosion of C H4 gas.	Falling of roof and coal.	Falling down shafts.	Crushed by mine cars.	Explosion of powder and blast	Miscellaneous.	On surface.	Totals.	Number of accidents.
Both thighs broken by a car running upon him,				1				1	1
Arm broken and slight bruises by jumping into the shaft after the cage,						1		1	2
Fell under an empty car, and was severely squeezed around his body,				1				1	3
Face and hands burned by an explosion of fire-damp,	1							1	4
Leg broken by a prop falling upon it,						1		1	5
Found lying on the ground with his skull fractured; supposed he fell and struck his head against a stump while taking the mule to the barn,							1	1	6
Face and hands burned by an explosion of fire-damp,	1							1	7
Leg broken and severely injured upon his body by being caught between screen and partition in the breaker,							1	1	8
Left leg fractured and otherwise bruised by a fall of bone coal,		1						1	9
Ruptured by being squeezed between car and mule,				1				1	10
Leg broken by an empty car running upon him,				1				1	11
Severely injured by a blast in rock while returning, thinking it had missed fire,					1			1	12
Face and hands burned by an explosion of fire-damp,	1							1	13
Head caught between two cars, and was severely squeezed,				1				1	14
Leg supposed to be broken by a fall of rock,		1						1	15
Arm broken by a prop falling upon him,						1		1	16
Leg broken above the ankle by falling under empty cars,				1				1	17
Fingers badly crushed by coupling cars,				1				1	18
Leg broken above ankle by a fall of coal,		1						1	19
Arm broken, ankle dislocated, and otherwise injured, by being crushed between a car upon which he was riding and a door,				1				1	20
Injured around hips by car running upon him; died February 19, 1883,				1				1	21
Spine severely injured and thigh bone broken by a platform falling upon him,						1		1	22
Arm broken and bruised about head and face by a fall of coal,		1						1	23
Arm broken by being caught between stretcher-chain and car,						1		1	24
Leg broken by a fall of coal; the miner was fatally injured the same time,		1						1	25
Leg broken near ankle by cars running upon him,				1				1	26
Badly squeezed by a fall of top coal.		1						1	27
Arm broken by running cars,				1				1	28
Leg broken and injured about his shoulders by a fall of coal,		1						1	29
Wrist crushed so that amputation of the hand was necessary by a car crushing it against the rib,				1				1	30
Arm broken by having it squeezed between car and mule,				1				1	31
Leg broken in two places by being crushed under cars on plane,				1				1	32
Shoulder bruised, } Both were together prying top coal down,		1						1	33
Head and leg bruised, } which, in falling, caught both under it,		1						1	34
Face, arms, and hands burned by an explosion of fire-damp,	1							1	35
Leg fractured by being squeezed between two cars,				1				1	36
Skull fractured by a fall of coal; he walked home alone, and got along well,		1						1	37
Thigh broken by a fall of rider-coal,		1						1	38
Face and hands severely cut by a rock blast exploding while he was withdrawing the charge,					1			1	39
Severely squeezed between car and door-post,				1				1	40
Spine severely injured by a piece of coal from rib falling upon him,		1						1	41
Face and hands burned by an explosion of gas while fighting a fire in the mine,	1							1	42
Slightly burned by the same explosion,	1							1	43
Slightly burned by the same explosion,	1							1	44
Slightly burned by the same explosion,	1							1	45
Slightly burned by the same explosion,	1							1	46
Small bone of leg fractured at ankle by being caught between car and prop,				1				1	47
Foot badly crushed by a prop falling upon it,						1		1	48
Sorely bruised by a fall of coal,		1						1	49
Back injured by being caught between a car and roof of gangway,				1				1	50
Left arm broken by a lump of coal thrown by a blast,					1			1	51
Severely injured around body by a fall of bony-coal,		1						1	52

TABLE No. 6.—

DATE.	Number of accidents.	Names of Persons Injured.	Age.	Wife.	Children.	Nationallty	Occupation.	Names of the Collieries.
April 3	53	Martin Loftus,	21			Irish,	Runner,	Diamond,
13	54	John Susnoski,	24	1	1	Polish,	Miner,	Gaylord,
19	55	Thomas Morris,		1	3	Irish,	Miner,	Henry,
19	56	Frank Lamercaux,	32	1	3	French,	Carpenter,	No. 2, Plymouth,
20	57	Michael Daggetts,	28			Polish,	Laborer,	No. 9, Sugar Notch,
21	58	Patrick Sheridan,	45	1	3	Irish,	Miner,	East Boston,
21	59	Daniel Cook,	38	1	4	American,	Tracklayer,	Mill Creek,
23	60	John Johnson,	30	1	3	Swede,	Sinker,	New Shaft, D. & H. C. Co.,
24	61	Michael Rustick,	34	1	3	Polish,	Miner,	Mill Creek Slope,
25	62	James Knight,	12			American,	Slate picker,	Laurel Run,
26	63	William Gallagher,	35	1		Irish,	Miner,	Clear Spring,
27	64	John G. Thomas,	65	1		Welsh,	Co-laborer,	Diamond,
May 1	65	Joseph Lewis,	20			Welsh,	Runner,	Wyoming,
7	66	Albert Anego,	22			Polish,	Laborer,	Slope No. 2, Nanticoke,
8	67	William Thomas,	34			Welsh,	Miner,	Oak Wood Prospect,
14	68	Joseph Zelinski,	26	1	1	Polish,	Laborer,	Slope No. 4, Nanticoke,
14	69	Albert Ewstrowski,	23			Polish,	Miner,	Shaft No. 1, Nanticoke,
23	70	William Kelley,	16			Irish,	Driver,	Laurel Run,
23	71	Ed. H. Jones,	49	1		Welsh,	Miner,	Shaft No. 1, Nanticoke,
23	72	John Bresnchew,	17			American,	Loader,	Reynolds,
25	73	William Richards,	28	1		Welsh,	Miner,	Midvale,
28	74	Andrew Smith,				American,	Runner,	Baltimore Slope,
29	75	John Rape,	25	1		Irish,	Headman,	Enterprise,
June 1	76	Thos. H. Hughes,	54	1	7	Welsh,	Miner,	Slope No. 4, Nanticoke,
1	77	John Roderick,	28	1	3	Welsh,	Laborer,	No. 2, Red Ash,
1	78	Benjamin Toms,	45				Miner,	Salem Colliery,
6	79	Edward J. Lewis,	45	1		Welsh,	Miner,	Diamond,
6	80	William Lewis,	20			Welsh,	Laborer,	
6	81	David Elias,	25			Welsh,	Rockman,	Gaylord,
12	82	James Price,	33	1	1	English,	Miner,	No. 1, Red Ash,
13	83	Edward O. Boyle,	38	1		Irish,	Miner,	Laurel Run,
14	84	William Cook,	53	1	6	American,	Miner,	Mill Creek,
14	85	James Giles,	38	1	4	English,	Miner,	Conyngham,
15	86	Michael Watters,	52	1	3	Irish,	Miner,	Enterprise,
15	87	Owen Moneghan,	45	1	6	Irish,	Miner,	
20	88	James Welch,	30	1		English,	Miner,	Nottingham,
20	89	B. Pullmontaine,	17			English,	Driver,	Forty Fort,
22	90	William Rodgers,	30	1		English,	Miner,	Nottingham,
22	91	William Bevan,	19			Welsh,	Switcher,	Nottingham,
25	92	Isaac Sartin,	29	1	2	English,	Miner,	Bennett,
26	93	S. Brockensheln,	13			English,	Door boy,	Gaylord,
July 6	94	Eddie Rosser,	14			Welsh,	Driver,	No. 3, Kingston,
6	95	Peter Friel,	40	1	4	Irish,	Miner,	Shaft No. 2, Nanticoke,
11	96	William Sheven,	58	1	5	American,	Propman,	Mineral Spring,
11	97	Daniel Sullivan,	21			Irish,	Driver,	Diamond,
11	98	Robert G. Roberts,	25			Welsh,	Laborer,	Empire,
13	99	Anthony McHale,	45	1		Irish,	Propman,	Pine Ridge,
16	100	Michael Laven,	40	1	5	Irish,	Miner,	Pine Ridge,
18	101	William Hagerty,	35	1	3	Irish,	Miner,	Hollenback,
18	102	James Gunning,	34			Irish,	Miner,	Exeter,
20	103	Richard Grey,	25			Welsh,	Miner,	Warrior Run,
21	104	Samuel J. Clark,	16			American,	Driver,	Gaylord,
24	105	George Kovic,	28			Hungarian	Laborer,	Pine Ridge,
25	106	John J. Lewis,	39	1	1	Welsh,	Miner,	Wyoming,
25	107	George Knight,	28			Welsh,	Laborer,	
25	108	David Rees,	25	1	1	Welsh,	Laborer,	
25	109	Charles Sheridan,	22			Irish,	Runner,	No. 5, Plymouth,
27	110	Christy Flynn,	16			Irish,	Driver,	Exeter,
31	111	Tomek Paciga,	36	1	2	Hungarian	Laborer,	Mill Creek,
31	112	Frank Marsh	26	1	2	Polish,	Laborer,	Black Diamond,

Continued.

Remarks on Extent of Injury and Cause of Accidents.	Explosion of CH_4 gas.	Falling of roof and coal.	Falling down shafts.	Crushed by mine cars.	Explosion of powder and blasts.	Miscellaneous.	On surface.	Totals.	Number of accidents.
Shoulder bone fractured by falling off a mule's back,						1		1	53
Severe cuts on head and face by a prop falling upon him,						1		1	54
Severely injured by a premature blast,					1			1	55
Leg broken below knee by coal falling from rib upon him,		1						1	56
Face and hands burned by an explosion of fire-damp,	1							1	57
Two ribs fractured and head injured by a fall of coal,		1						1	58
Legs severely bruised by falling under cars.				1				1	59
Severely injured on his head by a piece of timber falling upon him,						1		1	60
Severely injured by a premature blast. His laborer was fatally injured at the same time,					1			1	61
Wrist fractured and shoulder injured by falling down steps,							1	1	62
Leg broken by coal falling upon him at the face of breast,		1						1	63
Leg broken by the rope swinging against him on plane,						1		1	64
Foot severely crushed by being jammed between cars,				1				1	65
Leg broken by a piece of timber falling upon him,						1		1	66
Leg broken and shoulder dislocated by a fall of coal.		1						1	67
Shoulder bone broken and face bruised by a fall of top coal,		1						1	68
Seriously injured by a premature blast,					1			1	69
Arm crushed and ankle sprained by falling under a culm car,							1	1	70
Leg broken by coal which he was in the act of prying down,		1						1	71
Arm broken by falling from a railroad car at breaker,							1	1	72
Face and hands burned by an explosion of fire-damp,	1							1	73
Jaw bone fractured by a kick from a mule,						1		1	74
Head severely cut by attempting to pass under the shaft cage,						1		1	75
One rib fractured and back bruised by a piece of falling coal,		1						1	76
Quite severely injured by a fall of coal,		1						1	77
Thigh broken and body more or less bruised by a fall of slate,		1						1	78
Father and son were both burned slightly on face and hands while brushing gas and driving it to their lamps,	1 1							1	79 80
Leg and hand blown off so that both limbs were amputated, by using an iron pipe to ram a tight dynamite cartridge into a hole and exploding it,					1			1	81
Body severely bruised by being squeezed between a car and rib,				1				1	82
Leg broken by timber rolling upon it while unloading them from car,							1	1	83
Leg broken by a premature blast; cause, cutting squib too short,					1			1	84
Face and hands burned by an explosion of fire-damp.	1							1	85
Both were together prying a piece of coal down, and the overlying bench of bone fell on them, injuring both severely,		1 1						1 1	86 87
Back slightly injured by a fall of coal,		1						1	88
Leg crushed by attempting to board a train of cars and fell under,							1	1	89
Leg fractured by coal which he was in the act of pulling down,		1						1	90
Leg fractured by being caught between mine locomotive and cars,				1				1	91
Leg fractured and flesh lacerated by a fall of rock,		1						1	92
Leg bruised by falling under cars while attempting to get on,				1				1	93
Leg crushed, requiring amputation, by being caught between car and rib,				1				1	94
Leg broken by coal he was in the act of prying down, which fell on his leg,		1						1	95
Leg severely bruised by a fall of rock,		1						1	96
Toes severely crushed by being jammed between cars,				1				1	97
Leg broken near his ankle by a fall of coal,		1						1	98
Both legs and one arm broken by a fall of rock,		1						1	96
Thigh broken and ankle sprained by a fall of coal,		1						1	100
Neck and face severely cut and bruised by falling coal,		1						1	101
Hip dislocated by a piece of falling rock striking him,		1						1	102
Collar bone broken by a fall of roof,		1						1	103
Toes crushed, and had to be amputated, by being jammed between cars,				1				1	104
Head severely bruised by a premature blast; the miner was fatally injured at the same time,					1			1	105
The first two named were sorely burned on hands and face, and the third slightly by an explosion of gas while endeavoring to extinguish a fire,	1 1 1							1	106 107 108
Thigh broken by being jammed between cars,				1				1	109
Leg broken by being squeezed between car and mule,				1				1	110
Foot crushed, and had to be amputated, by coal sliding upon it.						1		1	111
Thigh broken by a fall of rock from under top coal,		1						1	112

TABLE NO. 6—

DATE.	No. of accidents.	Names of Persons Injured.	Age	Wife.	Children.	Nationallty	Occupation.	Names of the Collieries.
July 31	113	Harm. Harmonson,	26	. .		Danish, .	Miner, . . .	Alden, ...
31	114	Henry Hatch, . . .	33			English, .	Miner, . .	Exeter, ...
Aug. 2	115	Edward Buttson, .	25	1	1	English, .	Footman,	Hollenback, ...
2	116	Charles Smith, . .	30	1		German, .	Miner, . . .	East Boston, ...
2	117	John Dailey, .	16			Irish, . . .	Driver, ...	No. 2, Kingston, ...
2	118	Condy McClosky, .		1	1	Irish, . .	Miner, ...	Mineral Spring, ...
6	119	Frank Hochreiter,	14			German, .	Door-boy,	Hollenback, ...
9	120	Adam Janal, . . .	38		. .	Polish, . .	Laborer, .	Black Diamond, ...
13	121	John Johnson, . .		1		Swede,	Miner, . . .	Midvale, ...
15	122	Wm. W. Williams,	25			Welsh, .	Laborer, . .	Franklin, ...
15	123	Frederick Rhine, .	34	1	2	German, .	Miner, .	East Boston, ...
23	124	Edward Kisner,	14			American,	Headman,	Boston, ...
29	125	Herman Miller,	21			German, .	Runner,	No. 2 Shaft, Nanticoke, .
Sept. 1	126	Barney C. Boyle, .	13			Irish, . .	Door-boy, .	Stanton, . . .
4	127	David Phillips,	18			Welsh, .	Driver, . . .	No. 1, Kingston, . .
5	128	Martin Welsh, .	26			Irish, . . .	Miner, . . .	Exeter, ...
5	129	Luke Hines, . .	14			Irish, . . .	Door-boy,	No. 2, Kingston, ...
8	130	John Kemp. . .	16			American,	Driver, . . .	East Boston, ...
12	131	A. Dougherty, . .	38	1	3	Irish, . .	Miner, . . .	Enterprise, .
12	132	Barnet Carey,	38		3	Irish,	Miner, ...	No. 2 slope, Nanticoke, .
15	133	Pat Dunningham,	35			Irish, . . .	Miner, . . .	Lance No. 11, ...
18	134	Thomas Geach,	23	1		English, .	Laborer, . . .	No. 9, Sugar Notch, . . .
18	135	Isacher Dando, . .	43	1	6	English, .	Miner, . . .	No. 9, Sugar Notch, . . .
22	136	William Suiski, . .	30	1	1	German, .	Miner, . . .	Tunnel No. 2, Nanticoke,
24	137	W. H. Bowen, .	16			Welsh, . .	Driver, . . .	Pine Ridge, ...
28	138	George Affee, . . .	48	1		German, .	Miner, . .	East Boston, ...
29	139	John Sheehan, .	40			American,	Loco'e runner	Diamond, ...
Oct. 2	140	John A. Jones,	44	1		Welsh, . .	Miner, ...	Franklin, ...
2	141	Michael Lynch, . .	30			Irish, . . .	Laborer, . . .	Diamond, ...
2	142	Charles Clift,	28	1		English, .	Laborer, . . .	Pine Ridge, ...
3	143	John Fulton, .		1	3	American,	Headman, . .	East Boston, ...
8	144	Edward Thompson,	40	1	6	Scotch,	Miner, . . .	Clear Spring, ...
9	145	John Updyke,	21			American,	Laborer, . . .	Harry E., ...
9	146	James Ralston, .	16			Scotch,	Driver, . . .	Enterprise, ...
10	147	Oscar Hill,	14		. .	American,	Loader, . . .	Laurel Run, ...
10	148	Shadrack Roberts,	19			Welsh, . .	Laborer, . .	Dodson, ...
16	149	Samuel Gingel,	23	1		English, .	Miner, ...	Fuller Coal Company, . .
16	150	Thomas Evans,	16			Welsh, . .	Laborer, . . .	Boston, ...
17	151	John Wasco, . . .	38	1	3	German, .	Miner, . . .	No. 2 Shaft, Nanticoke, .
17	152	Frank Davidson, .	.	1		English, .	Laborer, . .	Baltimore Slope, . .
18	153	John R. Davies,	26	1		Welsh,	Miner, ...	Franklin, ...
23	154	Thomas Pritchard,	13	.		Welsh, .	Door-boy, . .	No. 1 Shaft, Nanticoke, .
23	155	Mike Mangan, .	24			Irish, . . .	Laborer,	Enterprise, . . .
24	156	John Edwards, .	50		2	Welsh, . .	Mine-boss,	No. 3 Shaft, Kingston, . .
25	157	Joseph Hope, .	13			Scotch,	Door-boy, . .	Enterprise, . . .
26	158	Wilbur Carey,	16			American,	Driver, ...	No. 1 Slope, Nanticoke, .
29	159	Higess Joshansky,	23			Polish, .	Laborer, .	No. 1 Shaft, Nanticoke, .
30	160	John Dunkle,	25			Polish, . .	Laborer, . .	Midvale, ...
31	161	John Ayers, .	55	1	1	Irish, . .	Laborer, . . .	Laurel Run, ...
Nov. 3	162	Simon Kleutza,	27	1		Polish, . .	Laborer, . .	No. 4 Slope, Nanticoke, .
5	163	George Polerhine,	23			Hungarian	Laborer, . . .	No. 4 Shaft, Plymouth, .
6	164	Matthew Malley, .	38	1	4	Irish,	Miner, ...	No. 5 Shaft, Plymouth, .
10	165	Thomas Madden, .	28			Irish, . . .	Laborer, . . .	Grand Tunnel, ...
12	166	Ludwig Ghlu, . .	16	. .		German, .	Slate-picker,	Harry E., ...
12	167	Michael Harevell,	17	.		Hungarian	Oiler, . . .	Harry E., ...

Continued.

Remarks on Extent of Injury and Cause of Accidents.	Explosion of CH4 gas.	Falling of roof and coal.	Falling down shafts.	Crushed by mine cars.	Explosion of powder and blasts.	Miscellaneous.	On surface.	Totals.	Number of accidents
Leg broken by a fall of rock while he was in the act of standing a prop,		1						1	113
Leg broken below knee by a fall of black rock,		1						1	114
Collar bone cracked by being caught between cars,				1				1	115
Two ribs fractured and otherwise injured by a fall of rock,		1						1	116
Leg broken near ankle. His whip caught and threw him under the cars,				1				1	117
Face and hands slightly burned by foolishly brushing gas into his lamp,	1								118
Right arm broken by a car running upon him,				1				1	119
Arm and legs injured by a fall of slate,		1						1	120
Face and hands burned by brushing fire-damp to his lamp,	1							1	121
Leg broken near ankle by a lump of coal falling from side of breast,		1						1	122
Shoulder bone broken by being squeezed between cars,				1				1	123
Foot crushed by cars running over it on breaker-plane,							1	1	124
Leg broken by being caught between two cars,				1				1	125
Severely squeezed between a car and brattice,				1				1	126
Thigh fractured by being caught between the cars and rib.				1				1	127
Face, hands, and arms slightly burned by an explosion of gas,	1							1	128
Severely kicked on face by a mule,						1		1	129
Shoulder bone fractured by being caught between a car and prop,				1				1	130
Face and hands slightly burned by an explosion of fire-damp,	1							1	131
Head and hands slightly burned by an explosion of fire-damp,	1							1	132
Collar bone fractured by being caught between car and prop,				1				1	133
Both were more or less burned on faces and hands by an explosion of fire-damp,	1 1							1	134 135
Leg and one rib broken, and severe cut on hand by a fall of top-coal,		1						1	136
Arm broken by falling while needlessly crossing before cars,				1				1	137
Leg broken and hurt on back by a fall of coal. He returned to the face too soon after exploding a blast,		1						1	138
Leg bruised and burned by being jammed between a car and fire-box of mine locomotive,				1				1	139
Thigh fractured by coal falling from side of gangway,		1						1	140
Leg severely bruised—caught between truck and frame of pusher-pit,							1	1	141
Two ribs and collar bone broken—caught between railroad cars,							1	1	142
Ribs and collar bone broken—squeezed between car and a platform,							1	1	143
Skull fractured and leg broken by a fall of rock in breast,		1						1	144
Leg broken by a small piece of rock falling upon him,		1						1	145
Severely squeezed between a car andd floor of mine. No bones broken,				1				1	146
Fell under a culm car and had his leg and arm broken,							1	1	147
Arm broken by a lump of coal thrown by a blast.					1			1	148
Thigh dislocated by a fall of rider-coal. The laborer was killed at the same time,		1						1	149
Thigh broken by a fall of coal jamming him against side of car,		1						1	150
Face and hands burned by an explosion of gas,	1							1	151
Leg broken by a fall of fire-clay roof,		1						1	152
Leg broken by coal which he was in the act of pulling down,		1						1	153
Leg severely lacerated by falling under cars,				1				1	154
Toes crushed by his foot slipping under a car-wheel,				1				1	155
Arm broken by a mule running upon him,						1		1	156
Leg broken near ankle by riding on a car and falling under it,				1				1	157
Jaw bone fractured by being jammed between a car and prop,				1				1	158
Face and hands burned by an explosion of gas,	1							1	159
Nose broken and face cut by falling under cars,				1				1	160
Foot severely bruised by a cast-iron pipe falling upon it,							1	1	161
Leg broken by a small piece of slate falling upon it,		1						1	162
Severely bruised by a fall of fire-clay. The miner was killed by the same fall,		1						1	163
Leg broken by a small piece of coal flying from a blast in adjoining breast,					1			1	164
Back severely injured by a fall of coal. His father was slightly hurt at the same time,		1						1	165
Thigh broken by sliding from the breaker-roof, having gone their for snow,							1	1	166
Arm crushed by falling under a car,				1				1	167

TABLE NO. 6—

DATE.	No. of accidents.	Names of Persons Injured.	Age.	Wife.	Children.	Nationality	Occupation.	Names of the Collieries.
Nov. 12	168	John Wetheraw, .	45	1	3	German, .	Miner, . . .	Hollenback, ...
12	169	John McDonald,	50		1	Scotch,	Miner, . . .	Hollenback, ...
12	170	John Eskoles, . .	26		. .	Polish,	Miner, ...	West End, ...
12	171	John Koller, . . .	45			Hungarian	Laborer, . .	West End, ...
13	172	Joseph Benson, . .	34	1	6	English, .	Miner, . . .	Mill Creek, . . .
13	173	Charles Jordan, . .	17			English, .	Driver, . .	No. 1 Shaft, Nanticoke, .
15	174	John R. Davies,	37	1	3	Welsh, . .	Miner, . .	Hartford, ...
17	175	Richard Edwards,	27	1		Welsh, . .	Miner, . . .	Diamond, ...
19	176	Mich. Hnrkofski, .	26			Polish, .	Miner, . .	No. 1 Shaft, Nanticoke, .
20	177	Henry Felton, .	38	1		English, .	Miner, . . .	Pine Ridge, ...
22	178	Stephen Thompson	20			English, .	Laborer, . .	Mill Creek, ...
23	179	Enoch Jones, .	58	1	. .	Welsh, . .	Miner, . .	No. 2. Kingston, .
24	180	Albert Burnett, .	13		. .	Welsh, . .	Door-boy, . .	No. 2 Shaft, Nanticoke, .
26	181	James Callaghan, .	25			Irish, . .	Laborer, . .	Diamond, .
27	182	Frank Farkofski, .	26	1	1	Polish, .	Miner, . . .	No. 4 Slope, Nanticoke, .
30	183	Jacob Hoover, . .	15			American,	Driver, . . .	Dodson, ...
Dec. 1	184	David J. Evans, .	32	1	2	Welsh, .	Miner, . .	Nottingham, ...
1	185	John T. Powell, .	21			English, .	Runner, .	No. 2 Shaft, Nanticoke, .
3	186	John Fitzpatrick, .	35	1	1	Irish, . .	Miner, . . .	Stanton, ...
4	187	John Feathers,	30	1		Polish, .	Laborer, . .	Nottingham, ...
4	188	Timothy Cronan, .	20			American,	Driver, . . .	Alden, ...
5	189	William Jackman,	50	1	7	English, .	Sinker, . . .	Enterprise. . . . .
6	190	Abraham Jones, .	33	1	4	Welsh, . .	Miner, . . .	Warrior Run, ...
8	191	Patrick Duddy,	43	1	5	Irish, .	Miner, . . .	Wyoming, ...
10	192	Michael Gallagher,	42	1	7	Irish, . .	Miner, . . .	Mill Creek Slope, ...
13	193	William Dickey, .	20		. .	Scotch,	Laborer, . .	Hollenback, ...
26	194	George Allison,	26			English, .	Sinker, . . .	Clear Spring, ...
29	195	John Healey,	55	1		Irish, .	Laborer, . .	Henry, ...
31	196	Thomas Golightly,	70	1	13	English, .	Slate-boss, .	Baltimore Slope, . . .

Continued.

Remarks on Extent of Injury and Cause of Accidents.	Explosions of CH4 gas.	Falling of roof and coal.	Falling down shafts.	Crushed by mine cars.	Explosions of powder and blasts.	Miscellaneous.	On surface.	Totals.	No. of accidents.
Spine dislocated by coal falling from rib while he was pulling some down below it,		1						1	168
Ankle fractured and body bruised by a fall of fire-clay,		1						1	169
Leg broken and skull possibly fractured, (This occurred by a blast exploding which they were in the act of charging; the other laborer, Michael Bartcovick, was instantly killed,)					1			1	170
Face severely bruised and burned,					1			1	171
Large toe crushed, and was amputated, caused by a fall of coal,		1						1	172
Leg broken. Foot caught in trace and threw him under cars,				1				1	173
Face and hands burned by an explosion of fire-damp,	1							1	174
Leg severely bruised, by being caught between a car and a prop laying on the ground,				1				1	175
One rib fractured by a premature blast,					1			1	176
Leg broken near ankle by coal flying from a blast,					1			1	177
Head, shoulder, and arm bruised by a fall of coal,		1						1	178
Thigh joint fractured and otherwise hurt by a fall of coal,		1						1	179
Half of his foot cut off by a piece of rock falling upon it,		1						1	180
Arm broken, and severe cuts and bruises by a fall of rock,		1						1	181
Thigh broken by coal and slate which he was prying down.		1						1	182
Leg crushed by a car in which he was riding running over the edge of a trestling and falling a height of about thirty feet. His leg had to be amputated,							1	1	183
Two ribs broken by a fall of coal which he was prying down,		1						1	184
Leg and arm broken by cars running upon him at head of slope,				1				1	185
Face and hands severely burned by an explosion of gas,	1							1	186
Leg broken by coal rolling from a loose pile upon him,						1		1	187
Arm severely squeezed between the jammers of two cars,				1				1	188
Back severely bruised by ice falling upon him from side of shaft,						1		1	189
Leg broken by a blast firing as he was returning to the face believing it had missed fire,					1			1	190
Face and hands burned by an explosion of gas,	1							1	191
Neck and hands burned, the hands quite severely, by an explosion of gas,	1							1	192
Thigh severely bruised by a fall of fire-clay,		1						1	193
Wrist broken by a missed blow of the striker's hammer,						1		1	194
Back injured, being severely struck by the car-door,						1		1	195
Hand crushed by unwittingly placing it in the cog-wheels in breaker,							1	1	196
Totals,	30	64	0	50	16	20	16	196	

TABLE No. 7.—*Showing number of days worked by the breakers, average tons of coal mined per day, number of persons employed, tons of coal mined per employé, persons injured, persons killed, tons of coal mined per person injured and killed, tons of coal mined per life lost, ratio of employés to the persons injured and killed, total tons of coal mined, kegs of powder used, and mules and horses employ d during 1883.*

LEHIGH VALLEY COAL COMPANY.

NAMES OF THE COLLIERIES.	Number of days worked by breaker.	Average tons of coal mined per day.	Number of persons employed.	Tons of coal mined per employee.	Number of persons seriously injured.	Number of persons killed.	Tons of coal mined per person injured and killed.	Tons of coal mined per life lost.	Ratio of employees to each person injured and killed.	Total tons of coal mined during 1883.	Number of kegs of powder used for all purposes in the mines.	Number of mules and horses employed.
1. Exeter,	236.30	604.72	363	393.65	6	1	20,413.78	142,896.50	51.85	142,896.50	4,700	54
2. Prospect,	226.45	1,029.87	508	459.08	2	1	77,738.66	233,216.00	169.33	233,216.00	7,569	68
3. Mineral Spring,	222.75	371.60	222	372.95	3	2	16,559.29	41,398.22	44.40	82,796.45	2,400	24
4. Henry,	225.85	494.88	269	415.50	2	2	27,942.57	55,885.15	67.25	111,770.30	3,975	47
5. Midvale,	225.15	279.27	200	314.39	4	2	10,479.83	31,439.91	33.33	62,879.00	2,371	10
6. Maltby,			57	219.58		1	12,516.55	12,516.55	57.00	12,516.55	967	5
7. Dorrance,	No breaker.		53	12.95						685.35	25	3
Totals Lehigh Valley Coal Company,	*227.30	2,845.44	1,672	386.81	17	9	24,875.39	71,862.23	64.30	646,760.15	22,007	211

LEHIGH AND WILKES-BARRE COAL COMPANIES.

8. Hollenback,	214.80	1,147.08	474	519.81	6	2	30,799.22	123,196.90	59.25	246,393.80	4,179	40
9. Diamond,	210.75	425.14	328	273.10	9	2	8,143.58	44,789.70	29.81	89,579.40	2,964	43
10. Empire,	208.95	1,146.83	675	369.80	4		59,905.42	No life lost.	168.75	239,621.70	5,660	47
11. Hartford,	211.90	989.00	700	296.66	3		69,221.33	No life lost.	233.33	207,664.00	6,639	39
12. Stanton,	74.05	940.63	390	178.60	2	1	23,218.13	69,654.40	130.00	69,654.40	1,809	24
13. Sugar Notch Shaft,	213.85	829.26	544	327.82	3		59,112.70	No life lost.	181.33	177,338.10	5,984	51
14. Sugar Notch Slope,	82.60	452.28	270	138.32			No one in	jured nor	killed.	37,359.30	1,353	35
15. Lance, No. 11,	100.00	337.83	217	155.68	1	1	16,891.75	33,783.50	108.50	33,783.50	1,040	17
16. Nottingham,	211.65	1,665.94	814	433.16	7	3	35,259.79	117,532.65	81.40	352,597.95	9,318	80
17. Reynolds,	214.40	752.16	394	409.29	2	2	40,315.90	80,631.80	98.50	161,263.60	3,929	47
18. Wanamie,	184.85	732.75	434	312.09			No one in	jured nor	killed.	135,449.60	5,106	42
19. South Wilkes-Barre,	No breaker.		14	33.00			No one in	jured nor	killed.	462.00		2
Totals Lehigh and Wilkes-Barre Coal Co.	*184.34	9,499.70	5,254	333.30	37	11	36,482.65	159,197.03	109.45	1,751,167.35	47,981	467

DELAWARE AND HUDSON CANAL COMPANY.

20. Mill Creek,	236.00	727.27	350	490.38	7	2	19,070.70	85,818.15	38.88	171,636.30	Not given.	41
21. Pine Ridge,	223.00	481.36	334	321.33	7	3	10,734.35	35,780.16	33.40	107,343.50	Not given.	54
22. Laurel Run,	242.75	530.01	314	409.74	6	. .	21,443.35	No life lost.	52.33	128,660.10	Not given.	44
23. Baltimore Slope,	203.50	253.43	178	289.74	3	. .	17,191.56	No life lost.	59.33	51,574.70	Not given.	20
24. Baltimore Tunnel,	240.75	565.27	333	408.70	1	. .	136,099.85	No life lost.	333.00	136,099.85	Not given.	35
25. Conyngham,	97.00	408.73	251	157.95	2	. . .	19,823.50	No life lost.	125.50	39,647.00	Not given.	26
26. No. 2 Plymouth,	232.00	662.86	413	372.35	2	1	51,261.21	153,783.65	137.66	153,783.65	Not given.	47
27. No. 3 Plymouth,	232.25	750.30	399	436 74	. .		No one in	jured nor	killed.	174,259.30	Not given.	51
28. No. 4 Plymouth,	223.75	629.41	316	445.67	3	3	23,471.99	46,943.98	52.66	140,831.95	Not given.	33
29. No. 5 Plymouth,	232.75	798.69	411	452.30	2	1	61,965.73	185,897.20	137.00	185,897.20	Not given.	66
30. Boston Mines,	172.00	395.79	207	328.87	2	. .	34,038.50	No life lost.	103.50	68,077.00	Not given.	28
Totals D. and H. Canal Company,	*212.34	6,394.52	3,506	387.28	35	10	30,173.56	135,781.05	77.91	1,357,810.55	†45,260	445

SUSQUEHANNA COAL COMPANY.

31. Breaker No. 1,	295.50	578.96	506	338.11						171,084.85		46
32. Breaker No. 2,	302.50	1,390.22	1,130	372.16	28	11	25,835.89	91,690,89	65.23	420,543.70	28,761	126
33. Breaker No. 3,	300.75	1,383.11	908	458.11						415,971.30		102
34. Grand Tunnel, No. 3,	255.15	437.86	332	336.50	3	1	27,930.20	111,720.80	83.00	111,720.80		23
Total Susquehanna Coal Company,	*288.475	3,880.13	2,876	389.19	31	12	26,033 03	93,276.72	66.88	1,119,320.65	28,761	297

WYOMING VALLEY COAL COMPANIES.

35. Wyoming Shaft,	234.20	1,057.23	562	440.57	13	3	15,475.31	82,535.00	31.37	247,605.00	6,800	60
36. Forty Fort,	225.00	519.58	363	322.05	2		58,453.50	No life lost.	181.50	116,907.00	5,600	37
37. Harry E.,	214.10	378.25	350	231.38	3	3	13,497.33	26,994.66	58.33	80,984.00	3,000	23
Totals Wyoming Valley Coal Co.,	*224.43	1,985.02	1,275	349.40	18	6	18,562.33	74,249.33	53.12	445,496.00	15,400	120

MISCELLANEOUS COAL COMPANIES.

38. Avondale,	222.10	772.01	409	419.22	. .	. .	No one	seriously in	jured.	171,464.25	4,536	61
39. No. 1 Shaft, Kingston,	237.20	765.83	360	504.60	2	1	60,552.23	181,656.70	120.00	181,656.70	4,535	42
40. { No. 2 Shaft, Kingston, / No. 3 Shaft, Kingston, }	239.55	1,097,72	492	534.46	6	. .	43,826.49	No life lost.	82.00	262,958.95	7,305	50
41. Gaylord,	230.70	656.01	406	397.39	5	1	26,890 46	161,342.80	67.66	161,342.80	5,711	35
42. Warrior Run,	208.75	423.59	257	347.95	2	.	44,712.50	No life lost.	128.50	89,425.00	2,345	20
43. Franklin,	242.75	610.03	465	318.46	4	2	24,680.91	74,042.75	77.50	148,085.50	8,621½	25
44. Enterprise,	226.90	610.14	307	450.27	11	4	9,236.14	34,635.55	76.75	138,542.20	4,335	56
45. East Boston,	211.25	563.31	259	459.45	6	2	14,875.00	59,500.00	32.37	119,000 00	2,975	29

TABLE No. 7—*Continued.*

NAMES OF THE COLLIERIES.	Number of days worked by breaker.	Average tons of coal mined per day.	Number of persons employed.	Tons of coal mined per employee.	Number of persons seriously injured.	Number of persons killed.	Tons of coal mined per person injured and killed.	Tons of coal mined per life lost.	Ratio of employees to each person injured and killed.	Total tons of coal mined during 1883.	Number of kegs of powder used for all purposes in the mines.	Number of mules and horses employed.
46. Black Diamond,	205.70	454.26	322	293.29	2	1	31,480.66	94,442.00	107.33	94,442.00	3,900	29
47. Dodson,	210.00	578.56	252	482.13	3	3	20,249.64	40,499.28	42.00	121,497.85	2,764	36
48. No. 1 Red Ash,	215.00	424.04	234	389.61	1	1	45,585.00	91,170.00	117.00	91,170.00	3,566	18
49. No. 2 Red Ash,	209.75	563.21	296	399.10	2	. .	59,067.10	No life lost.	148.00	118,131.20	4,542	22
50. Raubville,	198.00	340.57	211	319.59	. .	1	67,434.25	67,434.25	211.00	67,434.25	3,600	14
51. Bennett,	229.25	353.12	240	337.30	2	2	20,238.25	40,476.50	60.00	80,953.00	3,031	16
52. West End Coal Co.,	278.25	346.81	224	430.80	2	1	32,166.66	96,500.00	74.66	96,500.00	3,000	. . .
53. Salem,	248.50	208.39	176	294.23	1	. . .	51,786.00	No life lost.	176.00	51,786.00	1,740	24
54. Hillman, H. B.,	249.75	168.16	100	420.00	. . .	. . .	No one kill	ed nor in	jured.	42,000.00	1,978	12
55. Chauncey,	245.00	87.04	63	338.52	. .	1	No one injured.	21,327.00	63.00	21,327.00	960	9
56. Clear Spring,	256.00	394.53	255	396.07	3	4	14,428.57	25,250.00	36.42	101,000.00	3,366	25
57. Schooley,	. . . .	. .	108	88.00	. .	1	9,504.00	9,504.00	108.00	9,504.00	316	9
58. Fuller Coal Co.,	95.00	144.47	157	87.42	1	4	2,745.00	3,431.25	31.40	13,725.00	900	18
59. Maffit,	201.20	297.14	265	225.60	. . .	2	29,893.25	29,893.25	132.50	59,786.50	2,441	14
60. Hillman Vein,	65.00	133.96	143	60.89	. .	. . .	No one kill	ed nor in	jured.	8,708.40	300	5
61. Alden,	189.20	483.17	393	232.61	2	1	30,472.33	91,417.00	131.00	91,417.00	4,815	28
62. Boston,	11.80	This mine	passed	into the hands of the			D. & H. C. Co.	In January,	1883.	4,351.00	108	. . .
63. R. S. Poole,	Ceased	working	Janua	ry 31st, hav		ing	exhausted the	coal leased.		455.00	10	. .
Total Miscellaneous Coal Cos.,	*205.27	11,432.09	6,394	367.01	55	32	26,973.17	73,333.33	73.49	2,346,666.60	76,700	597

RECAPITULATION.

Lehigh Valley Coal Company,	227.30	2,845.44	1,672	386.81	17	9	24,875.39	71,862.23	64.30	646,760.15	22,007	211
Lehigh and Wilkes-Barre Coal Company,	184.34	9,499.70	5,254	333.30	37	11	36,482.65	159,197.03	109.45	1,751,167.35	47,981	467
Delaware and Hudson Canal Company,	212.34	6,394.52	3,506	387.28	35	10	30,173.56	135,781.05	77.90	1,357,810.55	45,260	445
Susquehanna Coal Company,	288.47	3,880.13	2,876	389.19	31	12	26,033.03	93,276.72	66.88	1,119,320.65	28,761	297
Wyoming Valley Coal Company,	224.43	1,985.02	1,275	319.40	18	6	18,562.33	74,249.33	53.12	445,496.00	15,400	120
All Miscellaneous Coal Companies,	205.27	11,432.09	6,394	367.01	55	32	26,973.17	73,333.33	73.49	2,346,666.60	76,700	597
Totals all Coal Companies,	*223.69	34,276.10	20,977	365.60	193	80	28,085.05	95,840.26	76.83	7,667,221.30	236,109	2,137

* Average. † Estimated.

In addition to the accidents shown in the above table there were nine fatal and three serious ones occurred in new shafts not producing coal, which make the total number of fatal accidents 89, and the serious non-fatal 196. An average of 498 persons were also employed in shaftts and tunnels which are not included in the above table.

TABLE No. 8.—*The number of each class of employees at each colliery during the year 1883.*

LEHIGH VALLEY COAL COMPANY.

NAMES OF COLLIERIES.	NUMBER OF PERSONS EMPLOYED INSIDE.							NUMBER OF PERSONS EMPLOYED OUTSIDE.							Grand total inside and outside.
	Bosses.	Miners.	Laborers.	All company men.	Drivers and runners.	Door boys.	Totals inside.	Bosses.	Mechanics.	Head and plate men.	All company men.	Drivers and runners.	Slate pickers.	Totals outside.	
1. Exeter,	2	84	54	37	58	14	249	2	12	8	40	11	41	114	363
2. Prospect,	3	107	127	43	60	16	356	1	24	7	51	8	61	152	508
3. Mineral Spring,	1	53	25	20	32	10	141	1	5	9	20	5	41	81	222
4. Henry,	1	62	40	21	50	21	195	1	6	6	35	1	25	74	269
5. Midvale,	2	37	49	10	15	5	118	1	9	3	12	2	55	82	200
6. Maltby,	1	. .	. .	50	6	. .	57	. . .	. .	. . .	. .	. .	. . .	. . .	57
7. Dorrance,	. . . .	12	24	6	3	. . .	45	. . .	2	. .	4	2	. . . .	8	53
Total Lehigh Valley Coal Company,	10	355	319	187	224	66	1,161	6	58	33	162	29	223	511	1,672

LEHIGH AND WILKES-BARRE COAL COMPANY.

8. Hollenback,	1	91	105	23	29	30	309	1	2	25	52	6	79	165	474
9. Diamond,	1	60	40	30	50	20	201	1	8	8	57	6	47	127	328
10. Empire,	1	150	118	61	63	31	424	1	. . .	36	48	5	161	251	675
11. Hartford,	1	175	180	32	37	51	476	1	22	15	39	10	137	221	700
12. Stanton,	1	73	90	22	35	20	241	1	13	16	33	3	83	149	390
13. Sugar Notch Shaft,	1	125	120	46	42	33	367	1	17	25	19	9	106	177	544
14. Sugar Notch Slope,	1	66	50	24	22	13	176	1	9	7	16	7	54	94	270
15. Lance, No. 11,	1	68	22	25	15	5	136	1	7	7	14	2	50	81	217
16. Nottingham,	1	230	70	110	65	40	516	1	. . . .	29	61	2	205	298	814
17. Reynolds,	1	96	94	31	24	29	275	1	4	10	24	9	71	119	394
18. Wanamie,	1	116	78	33	36	30	294	1	6	20	28	7	78	140	434
19. South Wilkes-Barre,	1	. . .	. . .	9	. . .	. . .	10	.	.	.	4	. . . .	.	4	14
Total Lehigh and Wilkes-Barre Coal Co.,	12	1,250	967	476	418	302	3,425	11	88	198	395	66	1,071	1,829	5,254

TABLE No. 8 – *Continued.*

DELAWARE AND HUDSON CANAL COMPANY.

NAMES OF COLLIERIES.	NUMBER OF PERSONS EMPLOYED INSIDE.							NUMBER OF PERSONS EMPLOYED OUTSIDE.							Grand totals inside and outside.
	Bosses.	Miners.	Laborers.	All company men.	Drivers and runners.	Door boys.	Totals inside.	Bosses.	Mechanics.	Head and plate men.	All company men.	Drivers and runners.	Slate pickers.	Totals inside.	
20. Millcreek,	1	69	65	27	58	11	231	1	10	7	34	5	62	119	350
21. Pine Ridge,	1	54	56	42	40	9	202	1	4	9	35	3	80	132	334
22. Laurel Run,	1	64	58	18	36	13	190	1	1	10	28	4	75	124	314
23. Baltimore Slope,	1	21	19	37	20	6	104	1	5	6	20	4	38	74	178
24. Baltimore Tunnel,	1	60	60	25	18	8	172	1	14	5	37	4	100	161	333
25. Conyngham,	1	43	43	40	18	11	156	1	4	7	21	2	60	95	251
26. No. 2, Plymouth,	1	89	76	43	57	11	277	1	. .	6	35	2	92	136	413
27. No. 3, Plymouth,	1	101	80	40	46	18	286	1	. . .	5	26	4	77	113	399
28. No. 4, Plymouth,	1	85	38	38	45	18	225	1	6	9	29	4	42	91	316
29. No. 5, Plymouth,	1	96	69	53	50	32	301	1	16	11	30	5	47	110	411
30. Boston Mines,	1	40	40	17	16	6	120	1	7	8	30	5	36	87	207
Total Delaware and Hudson Canal Co.,	11	722	604	380	404	143	2,264	11	72	83	325	42	709	1,242	3,506
SUSQUEHANNA COAL COMPANY.															
31. Breaker, No. 1,	1	82	80	12	31	13	218	1	61	15	129	3	79	288	506
32. Breaker, No. 2,	4	269	300	75	133	59	840	1	9	19	84	5	172	290	1,130
33. Breaker, No. 5,	2	198	278	72	89	48	687	1	14	13	77	5	111	221	908
34. Grand Tunnel, No. 3,	1	50	70	34	21	6	182	1	9	6	25	4	105	150	332
Total Susquehanna Coal Company,	8	599	728	193	274	125	1,927	4	93	53	315	17	467	949	2,876
WYOMING VALLEY COAL COMPANY.															
35. Wyoming Shaft,	2	119	100	70	87	40	418	2	9	17	26	7	83	144	562
36. Forty Fort,	3	104	75	16	32	10	240	3	10	5	33	7	65	123	363
37. Harry E.,	1	90	50	14	20	7	182	1	5	12	64	6	80	168	350
Total Wyoming Valley Coal Company,	6	313	225	100	139	47	840	6	24	34	123	20	228	435	1,275

MISCELLANEOUS COAL COMPANIES.

38. Avondale,	1	98	99	24	40	8	270	1	12	7	22	10	87	139	409
39. No. 1 Shaft, Kingston,	1	90	81	35	33	20	260	1	1	3	27	3	65	100	360
40. No. 2 Shaft, Kingston,	1	80	79	15	24	16	215	2	14	10	38	1	93	158	492
41. No. 3 Shaft, Kingston,	1	50	40	10	11	7	119								
42. Gaylord,	1	106	60	24	28	12	231	1	12	7	40	5	110	175	406
43. Warrior Run,	1	79	60	8	12	11	171	1	4	5	10	6	60	86	257
44. Franklin,	3	85	70	47	28	21	254	1	16	14	61	8	111	211	465
45. Enterprise,	1	64	58	47	40	22	232	1	7	6	23	7	31	75	307
46. East Boston,	1	70	50	15	40	10	186	1	5	7	15	2	43	73	259
47. Black Diamond,	1	75	70	36	34	16	232	1	8	6	20	1	54	90	322
48. Dodson,	1	50	50	31	15	8	155	1	6	9	39	2	40	97	252
49. No. 1, Red Ash,	1	75	25	8	16	5	130	1	3	9	40	3	48	104	234
50. No. 2, Red Ash,	1	95	57	6	23	13	195	1	3	13	40	3	41	101	296
51. Raubville,	2	50	50	5	12	2	121	1	2	4	10	3	70	90	211
52. Bennett,	2	51	55	19	23	6	156	1	6	7	13	1	56	84	240
53. West End Coal Company,	2	64	50	17	16	3	152	1	10	6	22	2	31	72	224
54. Salem,	1	50	40	6	12	3	112	1	2	4	7	5	45	64	176
55. Hillman, H. B.,	1	27	27	4	8	4	71	1	2	3	6	5	12	29	100
56. Chauncey,	1	17	15	1	8	1	43	1	2	1	3	1	12	20	63
57. Clear Spring,	1	70	70	18	22	9	190	1	4	6	16	3	35	65	255
58. Schooley,	1	25	25	7	3	. . .	61	1	3	5	15	3	20	47	108
59. Fuller Coal Company,	1	32	32	30	10	3	108	1	4	4	14	3	23	49	157
60. Maffit,	1	70	65	8	8	5	157	1	8	12	8	6	73	108	265
61. Hillman Vein,	1	28	34	19	4	6	92	1	3	7	4	1	35	51	143
62. Alden,	1	150	55	36	22	6	270	1	16	12	11	7	76	123	393
Total Miscellaneous Coal Companies,	30	1,651	1,317	476	492	217	4,183	25	153	167	504	91	1,271	2,211	6,394

RECAPITULATION.

Lehigh Valley Coal Company,	10	355	319	187	224	66	1,161	6	58	33	162	29	223	511	1,672
Lehigh and Wilkes-Barre Coal Company,	12	1,250	967	476	418	302	3,425	11	88	198	395	66	1,071	1,829	5,254
Delaware and Hudson Canal Company,	11	722	604	380	404	143	2,264	11	72	83	325	42	709	1,242	3,506
Susquehanna Coal Company,	8	599	728	193	274	125	1,927	4	93	73	315	17	467	949	2,876
Wyoming Valley Coal Company,	6	313	225	100	139	57	840	6	24	34	123	20	228	435	1,275
Miscellaneous Coal Companies,	30	1,651	1,317	476	492	217	4,183	25	153	167	504	91	1,271	2,211	6,394
Grand totals,	77	4,890	4,160	1,812	1,951	910	13,800	63	488	568	1,824	265	3,969	7,177	20,977

TABLE No. 9.—*Showing number of days worked by each breaker at every colliery, and for each month during 1883.*

LEHIGH VALLEY COAL COMPANY.

NAMES OF THE COLLIERIES.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1. Exeter,	16.75	13.45	17.45	18.25	16.50	18.05	18.20	24.35	23.15	24.95	23.60	21.60	236.30
2. Prospect,	16.20	14.05	17.60	18.10	17.70	18.50	18.20	20.85	22.85	24.90	22.90	14.60	226.45
3. Mineral Spring,	16.70	13.70	17.75	18.50	15.80	18.50	16.85	21.20	20.70	24.70	23.00	15.35	222.75
4. Henry,	16.00	14.50	16.00	17.60	16.00	18.30	18.15	24.20	21.40	24.60	23.50	15.60	225.85
5. Midvale,	16.95	12.60	17.90	18.70	16.20	18.40	18.20	21.10	21.10	25.60	23.70	14.70	225.15
6. Maltby,		5.35	9.00	5.22	7.18	9.20	8.17	8.45	7.90	8.50	8.40	8.00	85.37

LEHIGH AND WILKES-BARRE COAL COMPANY.

7. Hollenback,	16.65	13.35	17.35	17.35	15.70	17.05	17.50	23.30	21.10	22.55	20.30	12.60	214.80
8. Diamond,	16.20	14.50	17.00	17.60	12.75	15.40	18.00	23.15	18.90	21.80	21.40	14.05	210.75
9. Empire,	13.50	12.00	17.00	18.85	17.10	14.65	18.05	23.35	19.60	22.10	17.90	14.85	208.95
10. Hartford,	16.50	16.00	16.00	18.50	16 00	15.00	20.00	22.10	19.80	19.90	18.20	13.90	211.90
11. Stanton,									20.50	20.95	19.00	13 60	74.05
12. Sugar Notch Shaft,	16.25	15.00	16.50	18.50	16.75	14.75	18.75	22.10	22.80	20.90	18.30	13.25	213 85
13. Sugar Notch Slope,	9.65	13.25	14.35	15.55	14.20	12.10	3.50						82.60
14. Lance, No. 11,						1.40	8.60	19.80	17.00	21.60	17.60	14.00	100.00
15. Nottingham,	16.35	13.00	16.90	18.60	17.30	17.35	17.85	23.30	18.25	21.30	18.25	13.20	211.65
16. Reynolds,	16.15	13.10	17.40	18.05	16.75	18.20	17.95	24.70	18.40	21.90	18.75	13.05	214.40
17. Wanamie,	14.90	13.30	14.65	14.85	14.85	13.70	15.70	19.10	16.30	17.00	16.45	14.05	184.85

DELAWARE AND HUDSON CANAL COMPANY.

18. Mill Creek,	16.50	14.75	18.00	18.50	17.00	20.00	19.00	26.25	23.25	26.00	22.75	14.00	236.00
19. Pine Ridge,	18.25	14.75	16.75	18.25	17.00	19.00	18.50	20.50	19.00	25.50	25.50	10.00	223.00
20. Laurel Run,	18.50	14.75	17.75	19.00	17.75	20.00	17.00	26.75	23.75	27.00	25.50	15.00	242.75
21. Baltimore Slope,	13.50	14.75	16.75	16.75	16.50	16.50	12.00	20.00	19.75	21.25	22.50	13.25	203.50
22. Baltimore Tunnel,	16.25	14.25	17.75	19.00	18 00	19.50	19.00	25.25	24.75	26.75	25.25	15.00	240.75
23. Conyngham,	13.50		12.00	19.60	18.00	19.00						15.50	97.00
24. No. 2, Plymouth,	18.25	14.25	16.50	16.75	16.00	18.75	18.50	26.00	23.00	26.00	23.50	14.50	232.00
25. No. 3, Plymouth,	17.75	14.75	18.00	18.75	17.75	19.25	18.75	26.75	16.00	24.75	25.25	14.50	232.25
26. No. 4, Plymouth,	17.00	12.25	17.25	17.75	16.25	18.75	16.50	25.00	21.50	24.50	23.00	14.00	223.75
27. No. 5, Plymouth,	18.50	13.00	16.75	17.50	14.00	19.75	18.75	26.75	22.75	25.75	25.00	14.25	232.75
28. Boston Mines,			17.75	16.75	15.25	19.25		21.50	24.75	25.25	17.25	14.25	172.00

SUSQUEHANNA COAL COMPANY.

29. Breaker No. 1,	22.50	22.25	26.00	24.75	24.75	26.00	24.50	26.75	24.25	26.50	25.25	22.00	295.50
30. Breaker No. 2,	24.75	23.50	26.50	25.00	25.00	26.00	25.00	27.00	25.00	27.00	25.50	22.25	302.50
31. Breaker No. 5,	24.50	22.50	26.50	25.00	24.50	26.00	24.75	27.00	25.00	27.00	25.75	22.25	300.75
32. Grand Tunnel No. 3,	19.85	19.45	21.50	21.80	22.50	23.30	20.40	24.95	22.00	22.40	20.80	16.20	255.15

WYOMING VALLEY COAL COMPANY

33. Wyoming Shaft,	18.00	14.00	16.30	18.80	17.70	19.40	17.40	25.80	21.40	25.80	23.40	16.20	234.20
34. Forty Fort,	19.00	14.60	16.30	17.90	17.00	18.00	17.60	23.40	21.10	23.30	21.00	15.80	225.00
35. Harry E.,	16.00	13.50	15.00	15.00	16.00	16.00	17.00	23.00	21.50	24.80	22.00	14.30	214.10

MISCELLANEOUS COAL COMPANIES.

36. Avondale,	16.70	14.50	16.50	18.75	12.50	22.00	18.50	25.00	23.00	19.50	21.75	13.40	222.10
37. No. 1 Breaker, Kingston,	20.45	15.25	17.85	18.50	18.15	18.90	19.95	22.20	21.35	25.50	23.65	15.45	237.20
38. No. 2 Breaker, Kingston,	19.95	14.90	18.25	17.95	18.75	18.95	20.65	21.15	22.70	26.70	23.55	16.05	239.55
39. Gaylord,	16.80	13.90	18.75	16.50	18.25	19.50	20 75	21.75	20.25	25.50	23.50	15.25	230.70
40. Warrior Run,	15.50	15.00	14.50	14.25	15.00	16.00	17.25	21.50	21.75	23.00	20.00	15.00	208.75
41. Franklin,	18.00	14.25	17.50	19.00	17.50	19.25	19.00	25.25	23.25	27.00	26.00	16.75	242.75
42. Enterprise,	16.00	13.00	17.10	18.80	15.40	18.40	18.20	23.20	22.00	25.00	24.30	15.50	226.90
43. East Boston,	18.75	13.40	16.30	16.00	16.40	14.00	18.40	22.00	20.00	21.00	21.00	14.00	211.25
44. Black Diamond,	19.55	13.00	18.00	16.50	16.25	8.80	18.20	22.55	19.25	22.35	16.85	14.40	205.70
45. Dodson,	18.35	13.90	17.40	16.90	18.30	21.90	23.25	23.40	14.50	10.20	14.55	17.35	210.00
46. No. 1 Red Ash,	17.00	14.75	17.75	18.75	16.25	17.00	18.50	23.50	21.50	21.00	16.25	12.75	215.00
47. No. 2 Red Ash,	17.25	14.90	17.70	18.25	14.60	15.40	19.00	24.70	18.25	20.40	17.30	12.00	209.75
48. Raubville,	16.00	14.00	16.00	14.00	17.00	15.00	18.00	20.00	18.00	20.00	15.00	15.00	198.00
49. Bennett,	13.50	14.50	18.25	19.00	17.50	19.75	19.00	25.00	22.50	26.00	20.25	14.00	229.25
50. West End,	22.00	18.00	22.00	24.00	24.00	24.00	24.50	24.00	24.00	27.00	24.75	20.00	278.25
51. Salem,	19.50	17.00	16.00	20.75	18.75	21.50	23.50	24.00	23.00	22.00	23.00	19.50	248.50
52. Hillman, H. B.,	20.50	17.00	20.00	20.50	18.50	21.50	18.75	24.50	23.00	24.50	24.50	16.50	249.75
53. Chauncey,	16.00	16.00	18.00	19.00	19.00	21 0	22.00	24.00	22.00	26.00	23.50	18.50	245.00
54. Clear Spring,	23.00	20.00	23.00	20.00	19.00	20.00	19.00	25.00	21.00	26.60	25.00	15.00	256.00
55. Schooley,													
56. Fuller Coal Company,								6.00	23.00	25.00	25.00	16.00	95.00
57. Maffit,			16.50	22.10	18.20	19.80	14.30	25.50	22.90	23.60	22.90	15.40	201.20
58. Hillman Vein,										20.00	25.00	20.00	65.00
59. Alden,	7.70	14.175	17.15	16.725	16.05	16 225	16.975	17.325	15.75	17.775	18.675	14.675	189.20

TABLE No. 10.—*A list giving names of the Collieries, class of openings, names of the operators, mining bosses, outside foremen, superintendents, general foremen, and general superintendents of each colliery in the Middle district of Luzerne and Carbon counties in 1883:*

NAMES OF THE COLLIERIES.	Class of openings.	Names of Operators.	Names of the mining bosses.	Names of the outside foremen.	Names of superintendents.	Names of general foremen.	Names of general superintendents.
1. Exeter,	Shaft,	Lehigh Valley Coal Company,	Abednego Rees,	A. G. Mason,	F. Mercur,	Fred Mercur,	Fred. Mercur.
2. Prospect,	Shaft,	do. do.	William Samuel,	William Patten,	William Samuel,	do.	do.
3. Oakwood,	Shaft,	do. do.	Thomas Samuel,	do.	do.	do.	do.
4. Midvale,	Slope,	do. do.	Joseph Jones,	do.	do.	do.	do.
5. Dorrance,	Shaft,	do. do.	No mining boss,	do.	William Patten,	do.	do.
6. Henry,	Shaft,	do. do.	Thomas E. Lewis,	William E. Lines,	Wm. E. Lines,	do.	do.
7. Maltby,	Shaft,	do. do.	Thomas Lawther,	Robt. Shoemaker,	do.	do.	do.
8. Mineral Spring,	Slope,	do. do.	Thos. R. Thomas,	John Colvin,	John Colvin,	do.	do.
9. Diamond,	Shaft,	Lehigh and Wilkes-Barre Coal Co.,	David Jonathan,	Joseph Trempore,	Wm. T. Smyth,	Samuel J. Tonkin,	S. B. Whiting.
10. Hollenback,	Shaft,	do. do.	Joseph G. Wier,	Frank N. Finney,	do.	do.	do.
11. Empire,	Shaft,	do. do.	Lewis S. Jones,	Thos. Williamson,	do.	do.	do.
12. Hartford,	Slopes,	do. do.	David R. Roberts,	Merrit Frederick,	do.	do.	do.
13. Stanton,	Shaft,	do. do.	Wm. M. Thomas,	W. B. Crocker,	do.	do.	do.
14. South Wilkes-Barre,	Shaft,	do. do.	Richard Lloyd,	Richard Lloyd,	do.	do.	do.
16. No. 9, Sugar Notch,	Shaft,	do. do.	Thos. W. Morgan,	D. C. Tiffany,	do.	do.	do.
17. No. 10, Sugar Notch,	Slope,	do. do.	W. H. Hoskings,	Jacob Rhinehart,	do.	do.	do.
18. Lance,	Shaft,	do. do.	John James,	J. T. Renard,	do.	do.	do.
19. Nottingham,	Shaft,	do. do.	Mor. R. Morgans,	Geo. R. Connor,	do.	do.	do.
20. Reynolds,	Slope,	do. do.	John D. Walters,	P. H. Garrahan,	do.	do.	do.
21. Wanamie,	Slope,	do. do.	Nicholas Rapson,	H. W. Samms,	do.	do.	do.
22. Mill Creek,	Slope,	Delaware and Hudson Canal Company,	James Martin,	George Phiffer,	C. H. Scharar,	C. H. Scharar,	A. H. Vandling.
23. Pine Ridge,	Shaft,	do. do.	William W. Rees,	W. A. Gustin,	do.	do.	do.
24. Laurel Run,	Slope,	do. do.	Hugh McDonald,	D. W. Kembel,	do.	do.	do.
25. Baltimore,	Slope,	do. do.	Thos. Tamblyn,	E. M. Bradshaw,	do.	do.	do.
26. Baltimore,	Tunnel,	do. do.	John Williams,	Edward Mackin,	do.	do.	do.
27. Conyngham,	Shaft,	do. do.	David McDonald,	John Bowers,	do.	do.	do.
28. No. 2 Plymouth,	Shaft,	do. do.	William Cobley,	E. D. Peckins,	do.	do.	do.
29. No. 3, Plymouth,	Shaft,	do. do.	Jos. M. Steever,	Jno. Albrighton,	do.	do.	do.
30. No. 4, Plymouth,	Shaft,	do. do.	Edward Hahn,	Jas. N. Atherton,	do.	do.	do.
31. No. 5, Plymouth,	Shaft,	do. do.	Caleb Shonk,	J. W. Vandling,	do.	do.	do.
32. Boston,	Shaft,	do. do.	Gwilym Evans,	Charles Lawson,	do.	do.	do.
33. Tunnel No. 1,	Tunnel,	Susquehanna Coal Company,	Samuel Whitson,	H. Brader,	T. M. Williams,	Geo. T. Morgan,	J. J. Wistar.
34. Tunnel No. 2,	Tunnel,	do. do.	do.	do.	do.	do.	do.
35. Honey Pot,	Tunnel,	do. do.	do.	do.	do.	do.	do.
36. Tunnel No. 4,	Tunnel,	do. do.	Frank Michlass,	do.	do.	do.	do.
37. Slope No. 1,	Slope,	do. do.	Michael Corgan,	do.	do.	do.	do.

38. Slope No. 2,	Slope,	do. do.	Thos. R. Williams,	do.	do.	do.	do.	
39. Slope No. 4,	Slope,	do. do.	James Turner,	do.	do.	do.	do.	
40. Shaft No. 1,	Shaft,	do. do.	Thomas H. Jones,	do.	do.	do.	do.	
41. Shaft No. 2,	Shaft,	do. do.	Joseph Warne,	do.	do.	do.	do.	
42. Grand Tunnel,	Slope,	do. do.	Worthy Carver,	Pat. Cooper,	do.	do.	do.	
43. Avondale,	Shaft,	Delaware, Lackawanna & Western Co.,	Thos. J. Phillips,	Conrad Lee,	B. Hughes and Thos. D. Davies	B. Hughes and W. W. Storrs.	W. R. Storrs.	
44. Woodward,	Shaft,	do. do.	David Griffith,	Thomas Carey,	B. Hughes and Thos. D. Davies	B. Hughes and W. W. Storrs.	do.	
45. Woodward,	Shaft,	do. do.	Joseph R. Lewis,	do.	B. Hughes and Thos. D. Davies	B. Hughes and W. W. Storrs.	do.	
46. Pettibone,	Shaft,	do. do.	T. Peters,	Robt. Hutchinson,	B. Hughes and Thos. D. Davies	B. Hughes and W. W. Storrs,	do.	
47. No. 1, Kingston,	Shaft,	Kingston Coal Company,	Gwilym Edwards,	Thos. J. Morgan,	Gwilym Edwards,	G. Edwards,	Daniel Edwards.	
48. No. 2, Kingston,	Shaft,	do. do.	Daniel Lewis,	Geo. W. Edwards,	M. D. Rosser,	M. D. Rosser,	do.	
49. No. 3, Kingston,	Shaft,	do. do.	Joan Edwards,	M. D. Rosser,		do.	do.	
50. Gaylord,	Slope,	Gaylord Coal Company,	George Pieton,	David J. Isaac,		David J. Isaac,	do.	
51. Gaylord,	Shaft,	do. do.	Thos. J. Morgan,	do.		do.	do.	
52. Warrior Run,	Slope,	A. J. Davis,	D. R. Morgan,	Robert Lloyd,	John C. Jones,	John C. Jones,	A. J. Davis.	
53. Franklin, old,	Slope,	Franklin Coal Company,	John Hughes,	Charles Faner,		Wm. Thomas,	R. R. Morgans.	
54. Franklin Brown,	Slope,	do. do.	Sam. Thomas,					
55. Enterprise,	Shaft,	Andrew Langdon,	Robert Hislop,	H. J. Carey,	C. D. Simpson,	C. D. Simpson,	C. D. Simpson.	
56. East Boston,	Shaft,	W. G. Payne & Co.,	John Parry,	P. A. Watt,	E. F. Payne,	E. F. Payne,	E. F. Payne.	
57. Black Diamond,	Shaft,	Haddock & Steele,	Wm. H. Crocker,	George Carey,	James B. Davies,	James B. Davies,	James B. Davies.	
58. Dodson,	Shaft,	Plymouth Coal Company,	John B. Davies,	Clayton Young,	E. F. Stevens,	do.		
59. No. 1, Red Ash,	Slope,	Red Ash Coal Company,	Anthony Gard,	Joseph Shiner,	M. B. Williams,	M. B. Williams,	M. B. Williams.	
60. No. 2, Red Ash,	Tunnel,	do. do.	Daniel W. Evans,	John M. Connor,	do.	do.	do.	
61. Raubville,	Shaft,	Waddell & Walter,	William Wallace,	Jacob Wilkime,	James Waddell,	James Waddell,	James Waddell.	
62. Raubville,	Drifts,	do.	James Gallagher,	do.	do.	do.	do.	
63. Bennett,	Shaft,	Waddell & Co.,	George Pattison,	Geo. W. Waddell,	do.	do.	Thomas Waddell.	
64. West End,	Tunnel,	West End Coal Company,	Christ. Conrad,	Fred. House,	John Teasdale,	John Teasdale,	John Teasdale.	
65. Hillman,	Slope,	H. B. Hillman,	George Foerich,	H. W. Cohen,	H. B. Hillman,		H. B. Hillman.	
66. Schooley,	Shaft,	Dinniny & Cowan,	M. J. Langing,	John Haiston,	H. Dininny, Jr.,		H. Dininny, Jr.	
67. Fuller,	Shaft,	Fuller Coal Company,	John Morris,	Mark Walker,	S. N. Stetler,	S. N. Stetler,	S. N. Stetler.	
68. Mallit,	Slope, Tunnel,	Hanover Coal Company,	Daniel Lewis,	John Eyre,	J. Roberts, Jr.,		J. Roberts, Jr.	
69. Hillman,	Shaft,	Hillman Vein Coal Company,	Joseph Shearan,	E. L. Parrish,	F. B. Parrish,		F. B. Parrish.	
70. Alden,	Shaft, Tunnel,	Alden Coal Company,	William Bray,	William Ohl,	K. M. Smith,		K. M. Smith.	
71. Salem,	Tunnel,	Salem Coal Company,	Lemuel Smith.					
72. Chauncey,	Tunnel.							
73. Wyoming,	Shaft,	Wyoming Valley Coal Company,	Jenkin J. Jones,	Ph. Winterstine,	Wm. McCullock,	Alfred Smith,	Wm. McCullock.	
74. Forty Fort,	Shaft,	do. do.	Henry Johnson,	E. A. Denniston,	do.	do.	Alf. Smith, asst.	
75. Forty Fort,	Tunnel,	do. do.	Henry Johnson,	do.	do.	do.	do.	
76. Harry E.,	Shaft,	do. do.	John Thomas,	Alfred Walters,	do.	do.	do.	
77. Harry E.,	Tunnel,	do. do.	John Thomas,	do.	do.	do.	do.	

LUZERNE AND CARBON COUNTIES.

EASTERN DISTRICT.

OFFICE OF INSPECTOR OF MINES,
EASTERN DISTRICT OF LUZERNE AND CARBON COUNTIES,
SCRANTON, PA., *April 17, 1884.*

Hon. ROBERT E. PATTISON,
Governor of the Commonwealth of Pennsylvania:

SIR: I have the honor of herewith submitting my annual report as Inspector of Coal Mines, &c., of the Eastern or Scranton district, for the year ending December 31, A. D. 1883, in compliance with the twenty-second section of an act of Assembly approved March 3, A. D. 1870, entitled "An act to provide for the health and safety of persons employed in and around coal mines."

It is a very difficult matter to collect all the statistics necessary for a report of this character from some of the operators, inasmuch as the law does not provide for it, and they are thereby not obliged to furnish the inspectors any information except as a matter of courtesy. I have endeavored, however, to collect all the information I possibly could, but have failed in a number of instances. You will find all the information I collected embodied in my report hereto attached, which is condensed and tabulated.

It gives the number of coal mines and collieries in operation during the year and statements of their general condition; the number of shafts, slopes, tunnels, and drifts; the number of breakers, chutes, and screens for preparing, cleaning, and loading coal; the means of ventilation; the number of persons employed at each mine or colliery; the number of tons of coal mined at each mine; the local name and average thickness of each seam of coal worked; the number of steam engines and their respective horse-power, and the number of boilers, showing their condition and date of last examination.

The condition of the mines in this district is very good, and I perceive

a marked improvement in their supervision and safety every year. If the parties having charge of them would do their duty by enforcing the mine regulations more rigidly, it would materially reduce the number of deaths and accidents, and make mining operations scarcely less hazardous to conduct than any other dangerous work where accidents cannot possibly be avoided.

I have endeavored during the year to faithfully do my duty, and have had the assistance of operators at all times in the performance thereof, and it gives me pleasure to here acknowledge courtesies received from persons with whom I have had official relations during that time.

Total quantity of coal mined in 1883,	8,845,746	
Total quantity of coal mined in 1882,	7,922,318	
Excess of coal mined in 1883,		923,428
Number of employés inside,	14,840	
Number of employés outside,	6,944	
Total number of employés, 1883,		21,784
Total number of employés, 1882,		20,197
Excess of employés in 1883,		1,587
Number of fatal accidents, 1883,	66	
Number of fatal accidents, 1882,	75	
Decrease in 1883,		9
Number of non-fatal accidents, 1883,	348	
Number of non-fatal accidents, 1882,	341	
Increase in 1883,		7
Ratio of fatal accidents to total number of employés,		330
Ratio of non-fatal accidents to total number of employés,		63
Ratio of fatal accidents to tons of coal mined,		134,027
Ratio of non-fatal accidents to tons of coal mined,		25,419
Number of widows,		37
Ratio of tons of coal mined for each widow,		239,074
Number of orphans,		125
Ratio of tons of coal mined for each orphan,		70,766
Ratio of tons of coal mined for each employé in mines,		596
Ratio of tons of coal mined for each employé, inside and out,		406

I most respectfully refer you to the accompanying report, which is given in detail.

Respectfully submitted,

PATRICK BLEWITT,

Inspector of Mines.

COLLIERY IMPROVEMENTS FOR 1883.

Everhart Mines.

P. BLEWITT:

DEAR SIR: We have made the following improvements at this colliery since we took possession in April, 1883: Sunk slope opposite breaker two hundred and sixty-eight feet to basin of Marcy seam; opened tunnel near plane at breaker (is in about fifty feet) to same seam coal, five feet thick bottom part, with four feet fire-clay parting, and four feet top coal above; put in three new boilers at old slope, also put one new hoisting engine at the slope near breaker; built and bought forty new mine cars; erected trestle work one hundred and fifty feet long over main track to slope near office; have driven through fault on north side, find a good vein of clean coal eight feet thick, opened airway and traveling road to same.

ALLEN & POOLE,
Operators.

Fairmount Shaft.

Have sunk main shaft 10′×13′ to the bottom or Red Ash seam two hundred and twenty-feet, and have commenced second opening shaft 8′×10′, which was partly sunk in 1882; have put in a new safety-carriage, making two in main shaft; also got one-and-one-fourth-inch new wire rope in place of old one-and-one-eighth-inch.

A. MORRIS & CO.

Florence Shaft.

This has been finished, and it is in good working condition.

Stetler Shaft.

There has been a new slope finished in the mines, also the air-currents have been changed, making an improvement in ventilation.

Spring Brook Mines.

There has been a new breaker built at this mine, with a capacity for preparing and shipping six (600) hundred tons of coal per day.

Dunn Colliery.

Has been completed and is in good working condition.

Greenwood Colliery.

All the improvements are completed in No. 1 shaft, and are now sinking a slope on the north-west side of shaft.

Sibley Colliery.

Has been improved by putting in an additional steam-pump and four more steam boilers.

National Mines.

There has been a connection made between the shaft and slope, which is used for a second opening.

PITTSTON, PA., *April 9, 1884.*

MR. PATRICK BLEWITT,

Inspector of Mines:

DEAR SIR: The new Butler shaft was begun in August, 1883, under a lease from the Butler Coal Company, of Philadelphia, to S. B. Bennett, of Pittston, Pa., given February 5, 1883, and conveys the right to mine all coal on the property under certain temporary restrictions. The shaft is 10′×23′, located five hundred feet from the old one, in a south-easterly course, and sunk from the surface in order to avoid standing water in the Marcy vein, and is at present writing sunk to a depth of two hundred feet, leaving probably seventy-five feet of rock yet above bottom or Red Ash vein, which will be worked first. Two other veins of coal have been passed in sinking which will ultimately become workable.

Sinking has been done with an Ingersoll 3½″ rock drill, actuated by a 10″×18″ air compressor, with three shafts of three men each working on bottom of shaft. An average of fourteen inches has been made per day, which is thought very fair work when hardness of rock, inclemency of weather, and number of men in shaft is taken into consideration. It is expected that shaft will be completed by the middle of July, 1884, and will have a capacity of five hundred tons per day. A small breaker will be erected for temporary use, as ultimately the Butler breaker will be used.

Hoisting will be done by a pair of 6″×30″ geared engines.

S. B. B.

SCRANTON, PA., *March 8, 1884.*

P. BLEWITT, Esq.,

DEAR SIR: Below please find report of the Amity Coal Company, Limited.

Leases of lands of Isaac B. Felts, about one hundred and thirty-two acres of coal lands, situate on line of Lackawanna and Bloomsburg Railroad, about three thousand feet north-west of Lackawanna river. Sinking shaft, 10″×32″, to be about three hundred feet deep; one pair of 24″×48″ winding engines; one pair of 18″×36″ breaker engine; one pair of 18″×36″ fan engine; one pair of twenty-five feet diameter Guibal ventilating fan; one pair of 10″×12″ plane engines; twelve 34′×40″ boilers; two mudge screens, 5×15 feet; two center screens, 5×15 feet; two main screens, 5×27 feet; two pony screens, 5×27 feet; two buckwheat screens, 5×12 feet; one pair of main breaker crushers, 36″×42″; one pair of pony rollers, 24″×36″; one pair of pony rollers, 10″×18″. Will commence shipment of coal about June. Capacity of breaker 1,200 tons daily. Second opening will be about 400′ from shaft, through Taylorville shaft.

S. N. STETLER,
General Manager.

Scranton, Pa., *March 24, 1884.*

The following improvements have been made in coal department of the Lackawanna Iron and Coal Company during the year 1883:

At the Pine Brook colliery there has been driven a rock tunnel seven by sixteen feet, for a distance of five hundred feet at an angle of ten degrees; same has been driven from No. 4, or second, below Clark to Clark vein, cutting one vein of coal about midway. The object of this tunnel being to run all Clark vein coal to one common foot located in second vein below Clark. The tunnel or plane will be provided with double track for letting or lowering down coal in the ordinary way. Our connections have been made with old workings of Clark vein, hence with mule-way or man-way. The man-way upon the surface has been extended towards the breaker some distance by building side walls, and covering with large and substantial flag-stones, making a very complete and easy man-way from lower vein to surface. Above constitutes about all the important improvements made in coal department during year 1883.

R. G. Brooks, *Superintendent.*

Patrick Blewitt, Esq.,
Inspector of Mines:

Dear Sir: The New York, Susquehanna and Western Railroad Company have in the Lackawanna valley about seven and one half miles of railroad completed and in active operation, and about three and one half miles now under construction. When finished shipments will be made over this road from nine different collieries. Of these, the Greenwood and Sibley collieries have been for a long time in operation. The Dunn is a new operation completed during the last year at a cost of $100,000, and is now rapidly increasing its out-put. Jermyn No. 6, also completed during the last year, is a shaft colliery, having a shaft two hundred and twenty feet deep, cutting two veins of coal, and a very fine, large breaker and commodious outbuildings have also been erected. The cost of this plant is about $120,000. The Winton colliery is now being rapidly developed by a drift of about two thousand feet in length, one thousand four hundred feet of which have already been driven. The breaker foundations have been erected, and the timber for the breaker has been framed, and is ready to be raised. The Dolph colliery is now nearly ready for shipping coal. The plant consists of a very fine breaker and machinery, with suitable out-buildings, and the mine will be operated by a drift and inside gravity plain. The cost of development will be about $80,000.

The Spencer colliery is partly a new operation, and being rapidly completed. The breaker has been framed and raised, and the machinery is now being put in. The mine opening consists of a shaft which has been sunk through four seams of coal—three of which are so far developed as to insure an out-put of eight hundred tons per day from the very start. Coal will doubtless be shipped from this colliery about the 1st of May. The

other points of shipment are Jermyn No. 4, at Price, and the Lackawanna, at Olyphant, both mines having now been in operation a little more than one year.

JOHN JERMYN, *General Manager.*

SCRANTON, PA., *March 19, 1884.*

P. BLEWITT, Esq.,

DEAR SIR: Our improvements for 1883 are as follows: Cayuga plane from G to Diamond is finished, and working about twenty places in the Diamond vein. Brisbin has the third plane, that I alluded to last year, completed on the west mountain side. We are also sinking a new shaft, (near Tripp slope, called Tripp shaft,) 10′×35′ proposed to reach the Clark vein. Hyde Park shaft in F vein have driven a dip heading about one thousand feet; intend to put an engine there to hoist the coal up, then let it down the gravity plane to foot of shaft G vein. Continental shaft—we have a gravity plane in progress a thousand feet long, which we intend to get in operation early this year. We have partly sunk a shaft in Bellevue, under the tower of breaker, where the slope and shaft coal are hoisted to top of breaker, so as to hoist the coal direct from Clark vein to top of breaker at once, making the old shaft the pumping-way and place to put down all the supplies, &c. Respectfully yours,

B. HUGHES.

PATRICK BLEWITT, Esq.,

Mine Inspector, Scranton, Pa.:

DEAR SIR: Referring to our conversation in regard to Pancoast shaft, we commenced sinking shaft 10×34 feet in May last. At a depth of thirty feet we cut two feet five inches in coal. Below this, at a depth of ninety-nine feet, we cut the rock vein, nine feet and four inches thick. Coal good. Below this thirty feet, we cut two feet seven inches in coal—very good—and forty-three feet five inches more, the rock vein seven feet, very nice clean coal, making the shaft from top of brace two hundred and twenty-four feet deep. We have erected a tower-engine and fan-house, with machinery complete, all first class, furnished by the Dickson Manufacturing Company; also a new machine, carpenter, and blacksmith-shop, which is furnished with machinery and tools of the latest pattern. The second opening shaft, located two hundred and ten feet from main shaft, $10\frac{1}{2}\times14$ feet, was commenced the 14th day of January and is now down one hundred and twenty-three feet, and we expect to reach the Diamond vein next week. We are now building another wing to the breaker, which we expect to have finished by the 15th of April, which will give us a capacity of twenty thousand tons per month or more.

Very truly yours,

C. M. SANDERSON,
President.

Dunmore, Pa., *March 8, 1884.*

Dear Sir: Our breaker stands on the tract in the warrantee name of Elizabeth Rought, Winton borough, and the drift for coal starts on same tract, near the corner of said tract, Sarah Dana and William Rawle tracts, object being to mine coal from the two latter tracts, principally from the Rawle. Breaker presumed to be ready for business in April and of six hundred tons' capacity. Coal intended to be shipped over a branch railroad now being constructed in the interest of the New York, Susquehanna and Western Railroad Company, and may be ready for coal freights at our place some time in May next, judging from present rate of progression. Estimated coal area about three hundred acres, of the Archbald vein.

Respectfully submitted,

Edward Dolph.

P. Blewitt, Esq.,
Inspector of Mines.

Shaft No. 5.

Sunk on Wilkins property, seventy-five feet from north-west line of the Burschell and about one hundred and forty feet from lower north-west corner of same. Shaft about three hundred and three feet in depth and cutting four veins of coal. Carpenters are now lining shaft. The putting in of machinery in breaker is about completed. I gave you a report of the sinking of this shaft in table No. 7, for 1882.

Yours respectfully,

James Young,
Mine Superintendent.

Pennsylvania Coal Company's Office,
Dunmore, *January 26, 1884.*

TABLE No. 1.—*List of accidents resulting in death, reported to the inspector of including all of Lackawanna, and a portion of Wayne and Susquehanna counties, ending 31st day of*

DATE.	No. Killed.	Names.	Age.	Colliery where Accident Occurred.	Nationality.
1883.					
Jan. 2	1	William B. Stott, .	40	Jermyn, No. 3 breaker, D. L. & W., and D. & H. C. Co., Thirteenth ward, Scranton.	English, . . .
6	2	William Brace, .	25	Mount Pleasant Slope, W. T. Smith, Fourteenth ward, Scranton,	Welsh, ...
13	3	David Evans, . . .	40	Cayuga Shaft, D. L. & W., Third ward Scranton.	Welsh, ...
22	4	John Flannery, . .	22	No. 4 Shaft, Pennsylvania Coal Co., Jenkins township.	American, . .
24	5	Peter Naughton, .	35	Marvine Shaft, D. & H. C. Co., First ward, Scranton.	Irish, ...
Feb. 21	6	J. McManamna, .	16	Leggitt's Creek Shaft, First ward Scranton, .	American, . .
26	7	Henry Bachman, .	16	Mount Pleasant Slope, W. T. S., Fourteenth ward, Scranton.	American, . .
26	8	John Heibel, . . .	18	Bridge Mines, B. C. Co., Fourteenth ward Scranton.	American, . .
Mar. 6	9	David Llewellyn, .	35	Hyde Park Shaft, D. L. & W., Fifth ward, Scranton,	Welsh, ...
15	10	John Saul, ...	15	Central Shaft, D. L. & W., Fifteenth ward, Scranton.	Irish, ...
22	11	Henry Borthwick,	15	Law Shaft, Penn'a C. Co., Pittston township,	American, . .
April 7	12	Chris. Young, . .	32	Pine Brook Shaft, L. I. & C. Co., Seventh ward, Scranton.	German, . . .
17	13	Jesse Geddis, . .	50	Mosier Shaft, B. C. Co., Hughestown borough.	American, . .
17	14	Thomas Thomas, .	33	Von Storch Mines, D. & H. C. Co., Second ward, Scranton.	Welsh, ...
19	15	David P. Williams,	32	Cayuga Shaft, D. L. & W., Third ward, Scranton,	Welsh, ...
19	16	Matthew Nealon, .	56	Von Storch Mines, D. & H. C. Co., Second ward, Scranton.	Irish, ...
19	17	Frank Rodgers, . .	17	Dodge Breaker, D. L. & W., Lackawanna township.	Irish, ...
19	18	John Bourk, . .	68	National Mines, W. C. & Co., Twentieth ward, Scranton.	Irish, ...
20	19	Arthur McGowan,	15	Brisbin Shaft, D. L. & W., Third ward, Scranton,	Irish, ...
20	20	Anthony Maloney,	50	Archbald Shaft, D. L. & W., Lackawanna twp.,	Irish, ...
25	21	Thomas McGowan,	32	Central Shaft, D. L. & W., Fifteenth ward, Scranton.	Irish, ...
26	22	Bernard Coleman, . .		Eddy Creek Shaft, D. & H. C. Co., Olyphant borough.	Irish, ...
May 8	23	Festy Davin, . .	47	Greenwood Mines, P. A. C. Co., Lackawanna township.	Irish, ...
8	24	Benjamin Reese, .	56	Greenwood Mines, P. A. C. Co., Lackawanna township.	Welsh, ...
8	25	Anthony Duffy, . .	32	No. 9 Shaft, Penn'a C. Co., Pittson borough, .	American, . .
11	26	James Curry, . .	56	Gypsy Grove Mines, Penn'a C. Co., Dunmore borough.	Irish, ...
16	27	Charles W. Wood,	29	New Shaft, Lackawanna, Penn'a C. Co., Old Forge township.	American, . .
23	28	David Evans, .	37	Erie Shaft, H. C. & I. Co., Glenwood borough,	Welsh, ...
24	29	Frank Haggirty, .	18	Fair Lawn Slope, F. L. C. M. Co., Seventh ward, Scranton.	Irish, ...
June 2	30	James B. Edwards,	67	Leggitt's Creek Shaft, D. & H. C. Co., First ward, Scranton,	Welsh, ...
14	31	Anthony Daley, . .	34	Law Shaft, Penn'a C. Co., Pittston township, .	Irish, ...
18	32	Peter O'Brien, . .	17	Mount Pleasant Slope, W. T. S., Fourteenth ward, Scranton.	American, . .
19	33	Thos. Granahan, .	28	No. 9 Shaft, Penn'a C. Co., Pittston borough,	American, . .
21	34	Andrew Malia, . .	50	No. 12 Shaft, Penn'a C. Co., Pleasant Valley borough,	Irish, ...
27	35	Isaac Morgan, . . .	45	Mount Pleasant Slope, W. T. S., Fourteenth ward, Scranton,	Welsh, ...
27	36	Michael Callaghan,	55	Stetler Shaft, S. N. S. & Co., Marcy township, .	Irish, ...
27	37	Samuel Reese, . .	24	Dodge Shaft, D. L. & W., Lackawanna twp.,	Welsh, ...
July 23	38	James Philbin, . .	26	Greenwood Slope, P. A. C. Co., Lackawanna township,	Irish, ...
23	39	M. K. Munley, . .	46	Pierce Mines, Pierce C. Co., Archbald bor.,	Irish, ...
26	40	Thomas Healy, . .	50	Pierce Mines, Pierce C. Co., Archbald bor., . .	Irish, . . .
26	41	Frank Frisby,	37	Pyne Shaft, D. L. & W., Lackawanna township,	American, . .
Aug. 7	42	Daniel Needham, .	34	Continental Shaft, D. L. & W., Lackawanna township.	Irish, ...
16	43	James Tomblin, . .	13	Marvine Shaft, D. & H. C. Co. First ward Scranton.	American, . .

the Eastern District of the Wyoming coal fields, Luzerne and Carbon counties, now State of Pennsylvania, and the causes as shown by his investigations for the year December, A. D. 1883.

Occupation.	Killed.	Widows.	Orphans.	Nature or Cause of Death.	No Killed.
Engineer, . .	Died, .	1	2	Seriously injured; caught in breaker machinery; died two days after,	1
Laberer,	Killed,			Killed by a fall of roof,	2
Miner, ...	Killed,	1	5	Killed instantly by an explosion of giant powder while in the act of making a cartridge,	3
Laborer, . .	Died, .	. .		Seriously injured by a fall of roof; went into chamber against warning; died on the 26th,	4
Miner, ...	Died, .	1	5	Seriously injured by an explosion of a blast; died on Sunday morning, 28th,	5
Driver, . . .	Died, .	. .	. .	Seriously injured by a fall of roof; died Saturday morning, 24th, at three o'clock,	6
Driver, ...	Killed,	.		Killed; caught between edge of door and frame in mines, caused by an explosion of gas,	7
Car runner, .	Died,		. .	Leg injured and amputated; run over by a trip of cars; died March 2—bled to death,	8
Miner, ...	Died,	1	2	Leg fractured by a piece of coal flying from a blast—mortification set in—died that night,	9
Driver, ...	Killed,	. .	. .	Killed instantly by falling down the shaft,	10
Driver, . . .	Killed,		.	Killed instantly, skull fractured; got caught between two cars outside at foot of plane,	11
Miner, ...	Killed,	1	2	Killed instantly by a premature explosion of a blast,	12
Miner, ...	Killed,	1	3	Killed by a fall of roof,	13
Miner, ...	Died, .	1	5	Seriously injured by a fall of roof; died about four hours after,	14
Miner, . .	Killed,	. .	. .	Killed instantly by a fall of rock,	15
Laborer, . . .	Killed,	1	5	Killed instantly; run over by a trip of loaded mine cars,	16
Car loader, .	Died, .		. .	Seriously injured, large railroad car run over him under chutes; died about three hours after,	17
Car oiler, . .	Died, .		.	Squeezed by mine cars on head of breaker; died two days after,	18
Driver, ...	Died,			Seriously injured, run over by car outside; died a few hours after,	19
Laborer, . . .	Killed,	1	6	Killed by a fall of roof,	20
Laborer, . . .	Killed,	. .		Killed by a fall of rock roof,	21
Door-boy, . .	Killed,		. .	Killed; run over by a trip of loaded cars in mines,	22
Miner, . . .	Killed,	1	8	Killed instantly by a fall of rock roof,	23
Mine boss, . .	Died, .	1	6	Seriously injured, hit by a loaded mine car; died two days after,	24
Miner, ...	Died, .	1	1	Seriously injured by a fall of black rock; died a few hours after,	25
Laborer, . .	Killed,	1	5	Killed instantly by falling down the shaft, from middle vein to bottom, a distance of 65 feet,	26
Headman, . .	Killed,	1	. .	Blown to pieces by an explosion of dynamite or giant powder,	27
Miner, . . .	Died, .	1	4	Fatally injured by a fall of buck coal; died four hours after,	28
Laborer, . .	Died, .	. .	. .	Fatally burned by gas explosion; died two days after,	29
Mason, ...	Killed,	.	. .	Killed instantly by concussion of air caused by a heavy fall of roof,	30
Miner, ...	Died, .	1	2	Shot missed fire, went back, relit the match, and an immediate explosion took place; Daly died next day,	31
Footman, . .	Killed,	. .	.	Killed; hit by a loaded trip of mine cars at foot of slope,	32
Laborer, . . .	Killed,			Killed instantly by a fall of rider coal,	33
Miner, ...	Died, .	1		Left foot crushed close to toes by a fall of roof — mortification set in—died about six o'clock, P. M, June 27,	34
Miner, ...	Killed,	1	5	Killed instantly by a loaded trip of runaway mine cars on slope,	35
Miner, ...	Killed,	1	5	Killed instantly by fall of rock roof; blast blew down three props,	36
Miner, ...	Killed,	1	. .	Killed instantly, fall of top coal,	37
Laborer, . . .	Killed,		.	Killed instantly by a fall of rock roof,	38
Miner, ...	Killed,	1	6	Killed instantly by a fall of rock roof,	39
Laborer, . . .	Killed,	1		Killed instantly by same fall of roof,	40
Laborer, . . .	Killed,	1	4	Killed by a fall of top coal,	41
Miner, ...	Killed,	1	4	Killed instantly by a fall of top and bony coal,	42
Driver, . .	Killed,	.		Killed; caught between car and pillar,	43

TABLE No. 1—

DATE.	No. Killed.	Names.	Age.	Colliery where Accident Occurred.	Nationality.
Aug. 18	44	John Roane, . . .	25	Jermyn, No. 2, D. & H. C. Co., Jermyn bor., .	Irish, ...
23	45	Emory Motisco,	22	Stetler Mines, S. M. S. & Co., Marcy township,	German, . . .
24	46	George Dean, . .	20	Capouse Shaft, L. I & C. Co., Twenty-first ward, Scranton.	English, . . .
29	47	Daniel McDonnell,	40	Taylor Shaft, D. L. & W., Lackawanna twp., .	Irish, ...
Sept. 6	48	Michael Kelly,	42	Fairlawn Slope, F. C. M. Co., Seventh ward, Scranton.	Irish, ...
6	49	Alex. Blackwood,	35	Fairlawn Slope, F. C. M. Co., Seventh ward, Scranton.	English, . . .
8	50	Thomas Franey, .	35	Jermyn, No. 4, J. J., Dickson City borough, .	Irish, ...
28	51	Michael Malia.	50	Shaft No. 7, Penn'a C. Co., Jenkins township,	Irish, .
Oct. 3	52	Anthony Curley, .	14	Law Shaft, Penn'a C. Co., Pittston township, .	American, . .
3	53	Richard Clopfer, .	23	White Oak Mines, D. & H. C. Co., Archbald bor.,	German, . . .
29	54	Thomas Gallagher,	43	Shaft No. 7, Penn'a C. Co., Jenkins township,	Irish, ...
29	55	James Gallagher, .	41	Shaft No. 7, Penn'a C. Co., Jenkins township,	Irish, ...
Nov. 3	56	Philip McGehan, .	43	Marvine Shaft, D. & H. C. Co., First ward Scranton.	Irish, ...
7	57	Thomas Rennetto,	44	Sloan Shaft, D. L. & W., Lackawanna twp., .	English, . . .
9	58	John L. Lewis,	39	Bellevue Shaft, D. L. & W., Lackawanna twp.,	Welsh, ...
21	59	Charles Baird,	31	Meadow Brook Shaft, W. C. & Co., Twentieth ward, Scranton.	German, . . .
23	60	Martin Bell, . . .	36	Hillside Shaft, H. C. & I. Co., Pleasant Valley borough.	Irish, ...
30	61	Michael Flood, . .	24	Bridge Mines, B. C. Co., Fourteenth ward Scranton,	American, .
Dec. 5	62	Thomas Lynn,	45	Coal Brook Tunnel, D. & H. C. Co., Carbondale City.	American, .
6	63	Reese Jones, . . .	43	Pine Brook Shaft, L. I. & C. Co., Seventh ward Scranton.	Welsh, ...
13	64	Isaac Thomas, .		Eagle Shaft, Penn'a C. Co., Pittston borough,	Welsh, ...
18	65	Joseph Leffler, .	21	Twin Shaft, Penn'a C. Co., Pittston borough,	German, . . .
19	66	Thomas Odgers,	30	Cooper Shaft, Penn'a C. Co., Jenkins twp.,	English, . . .

NOTE.—There were 66 deaths in year 1883.
There were 37 widows in year 1883.
There were 125 orphans in year 1883.
There were 134,027 tons of coal mined for each death.
There were 239 074 tons of coal mined for each widow.
There were 70,766 tons of coal mined for each orphan.

Continued.

Occupation.	Killed.	Widows.	Orphans.	Nature or Cause of Death.	No. Killed.
Laborer,	Died,	1		Seriously injured by fall of roof; died three hours after,	44
Miner,	Killed,			Killed by a premature blast,	45
Miner,	Killed,			Killed almost instantly by a fall of bony coal,	46
Miner,	Killed,	1	10	Killed instantly by a fall of top coal,	47
Mine carpenter	Died,			These men were injured by an explosion of fire-damp, caused by stoppage of air-course on account of a raise of water; pump	48
Machinist,	Died,	1	1	got out of repair sometime before, and were repairing it when the explosion took place,	49
Miner,	Died,			Seriously injured by premature explosion of blast; died next day,	50
Miner,	Killed,	1	4	Killed by a fall of top coal,	51
Driver,	Killed,			Killed instantly by fall of roof,	52
Laborer,	Killed,			Killed by fall of roof,	53
Miner,	Killed,	1	6	These two brothers were working together, standing props in their chamber, preparing to draw back top coal; they left where they were working, went into the face of the chamber, when	54
Miner,	Died,	1	6	Thos. Gallagher fired the gas, causing an explosion which caused their deaths,	55
Laborer,	Killed,	1		Killed by a fall of roof,	56
Miner,	Killed,	1	9	Killed instantly by a premature explosion of a blast,	57
Miner,	Killed,	1	3	Killed; went back too soon after setting match on fire; blast went off, killing him,	58
Laborer,	Killed,			Run over by loaded cars on inside plane; died before he was taken out of mine,	59
Miner,	Died,			Seriously injured, cartridge exploded in hole while tamping; died same evening,	60
Sinker,	Died,	1	1	Seriously injured, fell off bucket down shaft, 80 feet to bottom; died twenty-eight hours after,	61
Miner,	Killed,	1		Killed by fall of fourteen inches coal,	62
Miner,	Killed,	1		Killed; blast missed fire and hit needle with hammer; cartridge exploded, killing Jones instantly,	63
Fire boss,	Killed,	1		Killed by concussion caused by an explosion of fire-damp; died same night,	64
Fireman,	Killed,			Killed instantly; fell down shaft from Pittston to bottom seam, a distance of ninety-five feet,	65
Sinker,	Killed,			Killed; fell down shaft,	66

There were 19 deaths caused by falls of coal, equal to . . . 13.66 per cent.
There were 20 deaths caused by falls of roof, equal to . . . 30.30 do.
There were 8 deaths caused by being crushed by mine cars, equal to . 12.12 do.
There were 5 deaths caused by being crushed by cars outside, equal to 7.58 do.
There were 7 deaths caused by explosions of fire-damp, equal to 10 60 do.
There were 3 deaths caused by explosions of powder, equal to . . . 4.52 do.
There were 4 deaths caused by falling down shafts, equal to 6 06 do.
There were 9 deaths caused by premature explosions of blasts, equal to 13.66 do.
There was 1 death caused by being caught in machinery, equal to 1.50 do.

Total deaths, 66, ... 100.00

TABLE No. 2.—*List of serious and non-fatal accidents reported to the Inspector now including all of Lackawanna and a portion of Wayne and Susquehanna year ending 31st day of December, A. D. 1883.*

Date.	No. Injured.	Names.	Age.	Colliery where Accident Occurred.	Nationality.
Jan. 5	1	Philip Caffrey, . .	13	Jermyn, No. 3, Shaft, D. L. &W., and D. & H. C. Co., Thirteenth ward, Scranton, . . .	American, .
5	2	Patrick Barrett . .	38	Central Shaft, D. L. & W., Fifteenth ward, Scranton, ...	Irish, ...
8	3	James McHale, .	14	Butler Slope, B. C. Co. Pittston township, .	American, . .
13	4	Thomas Davis, . .	55	Jermyn, No. 1, D. & H. C. Co., Jermyn borough,	Welsh, . . .
18	5	Patrick Coyne, . .	52	Eagle Shaft, N. C. Co., Pittston borough, .	Irish, ...
30	6	Anthony Mullen, .	55	Winton Shaft, F. and L. Winton, Pittston borough, ...	Irish, . .
Feb. 8	7	Henry Kingsley, .	22	Dunn Breaker, P. A. C. Co., Old Forge twp., .	German, . .
14	8	John Martin, . .	46	Slope No. 2, Penn'a C. Co., Jenkins township,	Irish, ...
14	9	James Walker, . .	14	Eddy Creek Shaft, D. & H. C. Co., Olyphant borough, ...	American, .
Mar. 24	10	Frank Caswell, . .	16	Taylor Shaft, D. L. & W., Lackawanna twp., .	English, . . .
27	11	Milo Loftus . . .	35	Shaft No. 5, Penna. C. Co., Jenkins township,	Irish, ...
27	12	Thomas Graver, .	13	Cayuga Shaft, D. L. & W., Third ward, Scranton,	Irish, ...
28	13	Patrick McHue, .	60	No. 1 Tunnel, Penna. C. Co., Pittston twp.,	Irish, ...
April 2	14	John Gilligan, .	45	Jermyn, No. 1, D. & H. C Co., Jermyn borough,	Irish, ...
4	15	Peter Brown, . . .	54	Coal Brook Mines, D. & H. C. Co., Carbondale City, ...	Irish, ...
12	16	Michael Kelly, . .	41	Von Storch Mines, D. & H. C. Co., Second Scranton, ...	Irish, . . .
21	17	Edward Dougher,	21	Shaft No. 10, Penn'a C. Co., Hughestown boro.,	Irish, ...
21	18	Patrick Timon, . .	19	Jermyn, No. 2, D. & H. C. Co., Jermyn boro.,	Irish, ...
25	19	Martin Mullen, . .	40	Stark Shaft, Penn'a C. Co., Lackawanna twp.,	Irish, ...
May 8	20	D. M. Knapp, . .	38	Marvine Shaft, D. & H. C. Co., First ward, Scranton.	American, . .
14	21	James Cummings,	14	Powderly Slope, D. H. & C. Co., Carbondale City, ...	American, . .
15	22	Louis Sawyer, . .	23	Pancoast Shaft, P. C. Co., Dickson City borough;	American, .
15	23	Patrick Cullen, . .	45	Pancoast Shaft, P. C. Co., Dickson City borough,	Irish, . . .
16	24	Pat. McLoughlin,	13	No. 2, Diamond Slope, D. L. & W., Twenty-first ward, Scranton, ...	Irish, ...
23	25	Llewellen Lewis, .	16	Scranton C. Co. Mines, D. L. & W., Lackawanna township, ...	Welsh, . . .
31	26	Benjamin Harris, .	23	Lackawanna C. Co., Shaft, L. C. Co., Blakely borough, ...	Welsh, . . .
June 5	27	John Gilhooley, . .	48	Fair Lawn Slope, F. L. C. Co., Seventh ward, Scranton, ...	Irish, ...
12	28	Thomas Sharpels, .	14	Cayuga Shaft, D. L. & W., 3d ward, Scranton,	Welsh, . . .
13	29	David Davis, .	30	Sloan Shaft, D. L. & W., Lackawanna twp., .	Welsh, . .
18	30	Michael O'Boyle, .	12	Eaton Mines, J. S. & Co., Archbald borough, .	American, .
18	31	William Muhan, .	20	Jermyn, No. 4, J. J. Dickson City borough, .	Irish, . . .
19	32	Patrick Granahan,	24	No. 9 Shaft, Penn'a C. Co., Pittston borough,	American, .
23	33	Michael Grady, .	16	Diamond Mines, E. V., D. L. & W., Twenty-first ward, Scranton, ...	Irish, ...
26	34	Henry Parker, . .	35	Brisbin Shaft, E. V., D. L. & W., Third ward, Scranton, ...	English, . . .
28	35	Henry Collins, .	17	Gipsy Grove Mines, Penn'a C. Co., Dunmore borough, ...	American, . .
July 9	36	Anthony O. Hora,	25	White Oak Mines, D. & H. C. Co., Archbald borough, ...	American, . .
21	37	Patrick Gallagher,	15	Mount Pleasant Mines, M. P. C. Co., Fourteenth ward. Scranton, . . .	Irish, . . .
23	38	Henry Shaffler, .	19	Pierce Mines, P. C. Co., Archbald borough, .	. . . . .
Aug. 21	39	James Sullivan, .	33	Von Storch Mines, D. & H. C. Co., Second ward Scranton, ...	Irish, . . .
21	40	John Casey, . . .	13	Keystone Tunnel, H. C. & I. Co., Geeenwood borough, ...	American, .
25	41	Fritz Carris, . . .	17	Gipsy Grove Breaker, Penn'a C. Co., Dunmore borough, ...	American, . .
Sep. 5	42	Martin Hart, . . .	26	Slope No. 4, Penn'a C. Co., Jenkins township,	American, .
6	43	Daniel Sourwine, .	40	Fair Lawn Slope, F. L. C. and M. Co., Seventh ward, Scranton, . . .	German, . .
7	44	Mich'l McAndrews	45	Hyde Park Shaft, D. L. & W. 5th ward, Scranton.	Irish, . . .
8	45	Patrick O'Mahony,	50	Grassy Island Shaft, D. & H. C. Co., Olyphant borough.	Irish, ...
11	46	John Manly, . . .	40	Filer's Shaft, Grassy I. C. Co., Winton borough,	Irish, . .
18	47	John Sterne, . .	42	Shaft No. 2, Penna, C. Co., Dunmore borough,	German, .
25	48	Martin Murphy, .	18	Jermyn, No. 2, D. H. C. Co., Jermyn borough,	Irish, ...
Oct. 1	49	Michael Durkin, .	11	Pierce Breaker, J. S. & Co., Winton borough,	Irish, ...

of the Eastern District of the Wyoming Coal Fields, Luzerne and Carbon counties, counties, State of Pennsylvania, and the cause as shown by his investigations, for the

Occupation.	Nature of Accident.	No. Injured.
Driver,	Left leg fractured below the knee by a mine car running on to it,	1
Miner,	Right leg fractured below the knee, and other injuries about the head by a fall of bony coal,	2
Driver,	Arm fractured below the elbow; caught between culm cars,	3
Miner,	Right leg fractured below the knee; fall of coal,	4
Laborer,	Small bone in leg fractured; caught between cars, (outside).	5
Laborer,	Leg fractured by boiler explosion,	6
Carpenter,	Knee cap fractured; fell off roof of new breaker,	7
Laborer,	Seriously injured; head jammed between car and roof,	8
Driver,	Mules head hit boy on arm fracturing it; he was holding mule to be shod in blacksmith shop,	9
Driver,	Arm fractured by falling off cars, (outside).	10
Laborer,	Leg fractured; caught under cars that jumped the track,	11
Door-boy,	Right leg fractured, caught between mine cars,	12
Miner,	Arm fractured by a fall of roof,	13
Miner,	Leg fractured; run over by mine car,	14
Miner,	Right leg fractured by fall of roof,	15
Prop-man,	Left leg fractured; a cobble stone rolled against his leg and caught it against a prop in new air shaft,	16
Miner,	Left leg fractured; run against a mine car in the dark, his light went out when running away from blast,	17
Laborer,	Leg fractured by mine car,	18
Miner,	Leg fractured by fall of roof,	19
Miner,	Left leg fractured by a fall of top coal,	20
Driver,	Right arm fractured; caught between piller and trip of cars,	21
Track-layer,	These men got on hoisting carriage contrary to the requirements of law, as there were no safety appliances on carriage; rope slipped off end of drum and let them drop forty feet to bottom of shaft,	22
Track-layer,		23
Driver,	Two ribs fractured; a piece of coal flew off a runaway car on slope and hit him,	24
Driver,	Right arm fractured, afterwards amputated; caused by mine cars running over it,	25
Miner,	Collar bone and two ribs fractured by a fall of top coal,	26
Miner,	Left foot badly crushed by being hit by a piece of coal flying from blast,	27
Door-boy,	Seriously injured about the head by a runaway car in mines,	28
Laborer,	Leg fractured by fall of top coal,	29
Door-boy,	Right arm amputated; fell in front of mine cars,	30
Runner,	Seriously injured; head jammed between car and prop,	31
Miner,	Leg fractured by fall of rider coal,	32
Drivers' helper	Both legs fractured by a mule tramping on him,	33
Miner,	Right leg fractured above the knee by fall of top coal,	34
Driver, runner	Left arm fractured; fell off mule while going to barn,	35
Laborer,	Leg fractured by a piece of coal sliding off pillar,	36
Driver,	Arm fractured; fell under mine car,	37
	Leg fractured: hit by rope in mines,	38
Laborer,	Right leg fractured above knee; fall of top coal,	39
Door-boy,	Right leg fractured above knee; run over by car,	40
Runner,	Left arm fractured; fell off platform at loading chutes,	41
Miner,	Arm fractured; fell from top of blacksmith bench of coal to pavement,	42
Superintend't,	Seriously injured by an explosion of gas,	43
Miner,	Thigh fractured; premature blast,	44
Miner,	Compound fracture of leg; fall of roof,	45
Miner,	Leg fractured; caught between car and pillar,	46
Miner,	Right arm fractured; hit by coal flying from blast,	47
Runner,	Leg fractured below knee while in the act of spragging a car,	48
Slate-picker,	Two ribs fractured; fell into coal chutes and fell on beam crossing same,	49

TABLE NO. 2.—

DATE.	No. Injured.	Names.	Age.	Colliery where Accident Occurred.	Nationality.
Oct. 2	50	James Johnson, .	45	Pierce Mines, J. S. & Co., Archbald borough, .	Irish, ...
2	51	William Lewis, .	21	Hampton Mines, D. L. & W., Lackawanna twp.,	Welsh, . . .
26	52	Hopkin Jenkins, .	53	Von Storch Mines, D. & H. C. Co., Second ward, Scranton,	Welsh, . . .
26	53	Thomas C. Jones, .	12	Meadow Brook Shaft, W. C. & Co., Twentieth ward, Scranton,	American, .
27	54	Thomas Boland, .		Grassy Island Shaft, D. & H. C. Co., Olyphant borough,	Irish, ...
29	55	Charles Parry, . .	46	Oxford Mines, D. L. & W., Fifth ward, Scranton,	Welsh, . . .
29	56	Frank Pierce, . .	14	Pine Brook Shaft, L. I. & C. Co., Seventh ward, Scranton,	Irish, ...
29	57	James Cusick, . .	17	Leggitt's Creek Shaft, D. & H. C. Co., Seventh ward, Scranton,	American, .
Nov. 6	58	Mike Mooney,	26	Mosier Shaft, P. C. Co., Hughestown borough,	Irish, ...
6	59	Sterling Sunnerel,	13	Meadow Brook Tunnel, W. C. & Co., Twentieth ward, Scranton, . . .	American, .
7	60	Thomas Sommers,	30	Cayuga Shaft, D. L. & W., Third ward, Scranton,	Irish, ...
16	61	William Davies, .	16	Mount Pleasant Slope, W. T. S., Fourteenth ward, Scranton, . . .	American, .
19	62	Wm. Naughan, .	33	Shaft No. 5, Pennsylvania C. Co., Jenkins township,	Irish, ...
20	63	Wm. Brown, . .	32	Jermyn No. -, D. & H. C. Co., Jermyn borough,	English, . .
21	64	James Scott, . . .	19	Hillside Shaft, H. C. & I. Co., Pleasant Valley borough,	American, .
22	65	Michael McDonnell	31	Jermyn No. 3 D. & H. C. Co., and D. L. & W., Thirteenth ward, Scranton, .	Irish, . . .
26	66	Henry Hahn, . .	12	Florence Shaft, P. C. M. & Co., Pittston twp.,	American, .
26	67	Michael Maloney,	11	Hampton Breaker, D. L. & W., Lackawanna township,	American, .
27	68	Thomas Connell, .	47	Meadow Brook Tunnel, W. C. & Co., Twentieth ward, Scranton,	Irish, . .
30	69	Thomas Loftus, .	15	Dodge Shaft, D. L. & W., Lackwanna twp., .	American, .
30	70	George Engle, . .	30	Pancoast Shaft, P. C. Co., Dickson City borough,	American, .
Dec. 4	71	Eugene Griskill, .	15	Taylor Shaft, D. L. & W., Lackawanna twp.,	Irish, . . .
5	72	Thomas Lynott, .	50	Marvine Shaft, D. & H. C. Co., First ward, Scranton,	Irish, ...
6	73	John Duffy,	55	No. - Shaft, D. & H. C. Co., Carbondale City.	Irish, ...
6	74	Anthony McHale,	50	Green Ridge Slope, O. S. J., Dunmore borough,	Irish, ...
8	75	David Harris, . .	14	Central Shaft, D. L. & W., Fifteenth ward, Scranton, . .	Welsh, . . .
19	76	Patrick Mills, . .	23	Lucas Shaft, L. C. Co., Second ward, Scranton,	Irish, ...
19	77	John Devers, . .	30	Leggitt's Creek Shaft, D. & H. C. Co., First ward, Scranton,	Irish, ...
19	78	David Turner, .	18	Jermyn No. 3, D. & H. and D. L. & W., Thirteenth ward, Scranton,	Welsh, . . .
19	79	Hugh Vickers, . .	14	Jermyn No. 3, D. & H. and D. L. & W., Thirteenth ward, Scranton, . . .	English, . .
31	80	David Powell, . .	14	Archibald Shaft, D. L. & W., Lackawanna twp.,	Welsh, . . .

NOTE.—There were eighty persons seriously injured.

Legs fractured by falls of coal,	9
Legs fractured by falls of roof,	7
Legs fractured by mine cars, (inside,)	18
Legs fractured by cars, (outside,)	1
Legs fractured by blasts,	2
Legs fractured from miscellaneous causes,	8
	45

Continued.

Occupation.	Nature of Accident.	No. injured.
Miner,	Spine injured; fall of top coal,	50
Miner,	Seriously injured, skull fractured; fall of roof,	51
Fire-boss,	Left arm fractured; fell off hoisting carriage in slope,	52
Door-boy,	Hip bone fractured; caught between car and prop,	53
Miner,	Arm fractured; fall of top and bony coal,	54
Footman,	Arm crushed, afterwards amputated; run over by loaded mine car,	55
Driver,	Toes mashed; a loaded culm car run over them,	56
Driver,	Right leg fractured; run over by loaded mine car,	57
Footman,	Leg fractured; a piece of coal fell down shaft and hit him on leg,	58
Door-boy,	Leg fractured; fall of mine car,	59
Miner,	Left arm fractured; fall of rock roof,	60
Driver,	Left leg fractured; mine car run on to it,	61
Miner,	Leg fractured; a piece of rock rolled on to it,	62
Miner,	Leg fractured; fall of top coal and buck,	63
Runner,	Leg fractured; run over by cars; fell off and was caught,	64
Laborer,	Seriously injured; premature blast,	65
Slate-picker,	Leg fractured; fell on screens,	66
Slate-picker,	Arm fractured while playing in box car at chutes during dinner hour,	67
Laborer,	Leg fractured; fall of top coal,	68
Driver-helper,	Severely injured; caught between car and pillar,	69
Sinker,	Seriously injured; fell down shaft from platform, a distance of fifty feet to bottom,	70
Driver,	Leg fractured; fell under car,	71
Miner,	Leg fractured; fall of roof,	72
Miner,	Leg fractured; fall of coal; foot caught between fall of coal and prop,	73
Track-layer,	Injured about body by coal flying off runaway trip of loaded cars on slope,	74
Driver,	Leg fractured; run against trip of cars in mines; he was riding on mule's back at the time,	75
Laborer,	Seriously injured on head and back by a fall of rock,	76
Miner,	Hip dislocated; fall of bony coal,	77
Driver,	Leg fractured; car run off track against prop, knocking it down, bringing roof on leg,	78
Driver,	Ruptured himself by jumping from trip of cars,	79
Driver,	Leg fractured by a fall of top coal,	80

Arms fractured by falls of coal,	1
Arms fractured by falls of roof,	2
Arms fractured by mine cars, (inside,)	4
Arms fractured by cars, (outside,)	4
Arms fractured by blasts,	1
Arms fractured from miscellaneous causes,	4
	16

Otherwise injured by falls of coal,	3
Otherwise injured by falls of roof,	2
Otherwise injured by mine cars, (inside,)	5
Otherwise injured by blasts,	1
Otherwise injured by gas explosion,	1
Otherwise injured from miscellaneous causes,	7
	19

TABLE No. 3.—*List of slight accidents reported to the Inspector of the Eastern all of Lackawanna, and a portion of Wayne and Susquehanna counties, State of 31st day of De*

DATE.	No. accid't.	Names.	Age.	Colliery where Accident Occurred.	Nationality.
Jan. 1	1	George Shell, . .	30	Capouse Shaft, L. I. and C. Co., 21st ward, Scranton, ...	English, .
3	2	John Bosa, . .	40	Stetler Shaft, S. N. S. & Co., Marcy township, . .	Hungari'n
3	3	Michael O'Hora,	45	Tripp Slope, D. L. & W., 21st ward, Scranton, . .	Irish, . .
4	4	Watkin Price, . .	15	Vonstorch Slope, D. & H. C. Co., 2d ward, Scranton,	Welsh, .
6	5	David Jones, . .	14	Mt. Pleasant Slope, W. T. S., 14th ward, Scranton,	American,
8	6	G. W. Canterbury,	56	Capouse Shaft, L. I. & C. Co., 21st ward, Scranton,	American,
8	7	Wm. Hughes, 2d,	32	Capouse Shaft, L. I. & C. Co., 21st ward, Scranton,	Welsh, .
8	8	James Ward, . .	40	Stark Shaft, Penn'a Coal Co., Lackawanna twp., .	Irish, . .
8	9	James McNicol, .	38	Eddy Creek Shaft, D. & H. C. Co., Olyphant boro',	Irish, . .
10	10	George Brown, .	26	Meadow Brook Shaft, W. C. & Co., 20th w'd, Scran'n,	English, .
11	11	Charles Collins,	34	Dodge Shaft, D. L. & W., Lackawanna twp., . . .	English, .
12	12	Mike Corcoran, .	13	Grassy Island Shaft, D. H. & C. Co., Olyphant, . .	American,
13	13	Thomas Tighe, .	25	Forest City Shaft, H. C. & I. Co., Clifford tp., Susq. co.,	Irish, . .
15	14	John Lindsay,	41	Capouse Shaft, L. I. & C. Co., 21st ward, Scranton,	English, .
15	15	Horace Williams,	35	Capouse Shaft, L. I. & C. Co., 21st ward, Scranton,	American,
15	16	Peter Cleary, . .	27	Central Shaft, D. L. & W., 15th ward, Scranton, .	Irish, . .
15	17	Step. Fitzpatrick,	15	Winton Shaft, Filer & Levey, Winton borough, . .	Irish, . .
16	18	Peter Farrell, . .	28	Barnum Shaft, Penn'a Coal Co., Marcy twp., . . .	American,
17	19	James Durkin, .	46	Brisbin Shaft, D. L. & W., 3d ward, Scranton, . .	Irish, .
18	20	David Thomas, .	27	National Shaft, W. C. & Co., 20th ward, Scranton,	Welsh, .
18	21	Thos. J. Powell,	21	National Shaft, W. C. & Co., 20th ward, Scranton,	Welsh, .
22	22	Jos. Summerhill,	21	Capouse Shaft, L. & I. & C. Co., 21st ward, Scranton,	English, .
22	23	John Gilvarry, .	24	Winton Shaft, Filer & Levey, Winton borough, .	Irish, . .
22	24	Patrick Smith, .	23	Winton Shaft, Filer & Levey, Winton borough, . .	Irish, . .
24	25	George Huntley,	17	No. 9 Shaft, Penn'a Coal Co., Pittston borough, .	American,
30	26	James Hart, . . .	35	Twin Shaft, Penn'a Coal Co., Pittston borough, .	Irish, . .
30	27	William Horan, .	17	Leggett's Creek Shaft, D. & H. C. Co., 1st w'd, Scra'n	American,
31	28	Thos. Ralchford, .	35	Phœnix Shaft, P. C. Co., Marcy township, . . .	Irish, . .
31	29	John McGrath, .	23	Phœnix Shaft, P. C. Co., Marcy township, ...	American,
Feb. 2	30	James Watkins, .	21	Capouse Shaft, L. I. & C. Co., 5th ward, Scranton,	Welsh, .
5	31	Thomas Riley, . .	48	Sibley Shaft, P. A. C. Co., Old Forge township, .	Irish, . .
6	32	Hugh Pace, . . .	42	Shaft No. 5, Penn'a Coal Co., Jenkins township, .	American,
7	33	William Reed, .	43	Central Shaft, D. L. & W., 15th ward, Scranton, .	English, .
7	34	Thomas Tighe, .	14	White Oak Mines, D. & H. C. Co., Archbald boro',	American,
9	35	Anthony Gownley	45	Slope No. 4, Penn'a Coal Co., Jenkins township, .	Irish, . .
9	36	John Mack, . . .	14	Spring Brook Mines, H. C. & I. Co., Lackawanna tp.,	Irish, . .
10	37	Matt. Flannery,	15	Coal Brook Mines, D. & H. C. Co., Carbondale City,	Irish, . .
12	38	David R. Williams	20	Ontario Breaker, L. V. C. Co., Pleasant Valley,	Welsh, .
13	39	Hugh Campbell, .	12	Bellevue Breaker, D., L. & W., Lackawanna twp.	Irish, .
14	40	Isaac Hinchcliff, .	30	Phœnix Shaft, P. C. Co., Marcy township, . .	American,
16	41	Michael Early, .	38	Scranton C. Co. Mines, D., L. & W., Lackawanna tp.	Irish, . .
16	42	Patrick Duffy, .	26	Scranton C. Co. Mines, D., L. & W., Lackawanna tp.	Irish, . .
16	43	James Gallagher,	25	Scranton C. Co. Mines, D., L. & W., Lackawanna tp.	Irish, . .
19	44	J. J. McDermott,	23	Capouse Shaft, L. I. & C. Co., 5th ward, Scranton,	Irish, . .
21	45	Mordacai Mich, .	21	Bellevue Slope, D., L. & W., Lackawanna twp., .	Hungari'n
21	46	Patrick Duddy, .	55	Shaft No. 7, Penn'a C. Co., Jenkins township, .	Irish, . .
21	47	Edward J. Evans,	40	National Shaft, W. C. & Co., 20th ward, Scranton,	Welsh, .
21	48	Francis Thomas, .	31	National Shaft, W. C. & Co., 20th ward, Scranton,	Welsh, .
26	49	Thomas Bevan, .	29	Capouse Shaft, L. I. & C. Co., 21st ward, Scranton,	Welsh, .
Mar. 1	50	Isaac Avery, . .	.	Jermyn, No. 1, Breaker, D. & H. C. Co., Jermyn boro'	American,
2	51	Evan P. Evans, .	.	Columbia Tunnel, Grove Bros., Marcy township, .	Welsh, .
2	52	Charles Parry, .	.	Columbia Tunnel, Grove Bros., Marcy township, .	Welsh, .
5	53	John Fitzhenry, .	48	Greenwood Mines, P. A. C. Co., Lackawanna twp.,	Irish, . .
5	54	James Kennedy, .	34	Coal Brook Mines, D. & H. C. Co., Carbondale City,	American,
8	55	John McQueen, .	14	Eagle Shaft, N. C. Co., Pittston borough, . . .	American,
12	56	Edward Dempsey,	25	Erie Shaft, H. C. & I. Co., Greenwood borough, .	American,
12	57	Thomas Litts, . .	25	Leggett's Creek Shaft, D. & H. C. Co., 1st w'd, Scra'n	English, .
12	58	George Simmons,	14	Butler Shaft, B. C. Co., Pittston township,	American,
13	59	Frank Siddons, .	16	White Oak Mines, D. & H. C. Co., Archbald borough,	American,
19	60	Pat'k McNamara,	50	Capouse Shaft, L. I. & C. Co., 21st ward, Scranton,	Irish, .
19	61	John W. Flnn, .	17	Capouse Shaft, L. I. & C. Co., 21st ward, Scranton,	Irish, . .
19	62	John Ban, ...	30	Leggett's Creek Shaft, D. & H. C. Co., 1st w'd, Scra'n	Irish, . .
10	63	Edward Meredith,	43	Hyde Park Shaft, D., L. & W., 5th ward, Scranton,	Welsh, .
19	64	Richard Galnard,	25	Hyde Park Shaft, D., L. & W., 5th ward, Scranton,	German, .
19	65	James McGlvigan,	17	Meadow Brook Tunnel, W. C. & Co., 20th w'd, Scra'n	Irish, . .
20	66	John Ludden, . .	18	Greenwood Mines, P. A. C. Co., Lackawanna twp.,	Irish, . .
21	67	John McHugh, .	15	Shaft No. 2, Penn'a Coal Company, Dunmore boro',	American,
24	68	Henry W. Davis,	36	Bellevue Slope, D., L. & W., Lackawanna twp., .	Welsh, .
24	69	James Gallagher,	25	Scranton C. Co., D., L. & W., Lackawanna twp., .	Irish, . .
24	70	Owen Cannon, .	52	Cayuga Shaft, D., L. & W., 3d ward, Scranton,	Irish, . .
Apr. 2	71	Peter Gillespie, .	21	Shaft No. 8, Penn'a Coal Co., Hughestown borough,	American,

District of the Wyoming coal fields, Luzerne and Carbon counties, now including Pennsylvania, and the cause as shown by his investigations, for the year ending cember, A. D. 1883.

Occupation.	Nature or Cause of Accident.	No. accid't.
Footman,	Slightly injured; a car of coal was dumped on him, off hoisting-carriage at foot of shaft,	1
Laborer,	Foot slightly injured by a fall of rock,	2
Miner,	Head slightly injured by a fall of roof,	3
Driver,	Foot slightly injured by a piece of coal falling off a mine car,	4
Door boy,	Face slightly injured by a kick from a mule,	5
Miner,	Flesh wound on calf of leg; caught between empty cars in mines,	6
Miner,	Slightly injured over eye by a fall of a piece of bony coal,	7
Miner,	One rib fractured by a fall of a piece of middle rock,	8
Miner,	Slightly injured by a fall of roof,	9
Miner,	Big toe slightly mashed by a fall of coal,	10
Miner,	Injured slightly by a fall of coal,	11
Door boy,	Head slightly injured by being kicked by a mule,	12
Miner,	Injured by a fall of roof; no bones broken,	13
Car oiler,	These two men got caught by large railroad cars at breaker; the locomotive backed cars into switch, without the engineer giving any notice to men that were working there; not serious,	14
Car loader,		15
Laborer,	Injured by a fall of roof; no bones broken,	16
Driver,	Kicked by a mule; not serious,	17
Miner,	Injured by a fall of black rock; no bones broken,	18
Miner,	Head and body injured by a fall of top coal; no bones broken,	19
Miner,	Both these men were burned about the hands and face by an explosion of gas.	20
Miner,	Not reported of a serious nature,	21
Car loader,	Leg badly cut; a large railroad car run on to it; it is only a flesh wound,	22
Miner,	Both these men got caught under a fall of roof; slight in both cases,	23
Miner,		24
Wheel runner,	Head slightly injured; got hit by a car getting off the track,	25
Miner,	Injured by a premature explosion of a blast; did not give himself time to get away,	26
Runner,	Slightly injured by an explosion of gas,	27
Miner,	Both these men slightly burned by an explosion of gas,	28
Laborer,		29
Runner,	Hand slightly injured; caught between car and roof,	30
Miner,	Slightly injured by a fall of roof,	31
Miner,	Right hip dislocated by a fall of black rock,	32
Miner,	Knee dislocated and back injured by a fall of coal,	33
Driver,	Head and breast badly squeezed; got caught between car and prop,	34
Miner,	Slightly injured by a fall of blacksmith coal and rock,	35
Car blocker,	Hand slightly injured by being caught by a mine car,	36
Driver,	Slightly injured by being kicked by a mule,	37
Runner,	Right hand slightly injured by a car passing over it,	38
Slate picker,	Injured in face by a kick from a mule,	39
Miner,	Slightly burned by an explosion of gas,	40
Miner,	These three men were slightly burned by an explosion of gas,	41
Miner,		42
Miner,		43
Driver boss,	Finger crushed by mine car,	44
Laborer,	Slightly injured by a fall of roof,	45
Miner,	Injured slightly by being hit by a piece of coal flying from blast,	46
Miner,	Both these men slightly burned by an explosion of gas,	47
Miner,		48
Laborer,	Slightly injured by a premature explosion of a blast,	49
Car loader,	Injured slightly; caught between end of apron of chute and top rail of railroad car,	50
Miner,	Slightly injured by premature explosion of a blast. Both these men worked together,	51
Miner,		52
Miner,	Slightly injured by fall of roof,	53
Miner,	Slightly burned by an explosion of powder; spark fell into keg,	54
Car oiler,	Top of index finger taken off; caught by cars,	55
Miner,	Foot slightly crushed by a fall of coal,	56
Laborer,	Slightly injured by falling on railroad track; outside at breaker,	57
Driver,	Injured on face by a kick from a mule,	58
Runner,	Slightly injured on head; caught between two mine cars,	59
Miner,	Slightly injured; fall of coal,	60
Driver,	Index finger mashed; caught between two mine cars,	61
Laborer,	Slightly injured by prop falling on him,	62
Miner,	Injured slightly by a fall of roof,	63
Laborer,	Slightly injured by a rall of roof,	64
Driver,	Slightly injured by being kicked by a mule,	65
Driver,	Face slightly injured; kicked by a mule,	66
Driver,	Finger slightly injured; caught between two mine cars,	67
Miner,	Slightly injured by an explosion of gas,	68
Miner,	Injured slightly by a premature explosion of a blast,	69
Laborer,	Slightly injured; fall of coal,	70
Mine carpenter,	Foot cut slightly; caught between car and end of plank outside,	71

TABLE No. 3—

DATE.	No. accident.	Names.	Age.	Colliery where Accident Occurred.	Nationality.
Apr. 3	72	James Nealis, . .	21	Pancoast Mines, P. C. C., Dickson City borough, .	American,
3	73	William Bell, . .	13	Enteris Breaker, L. V. C. Co., Pleasant V. boro., .	English, .
4	74	Lewis W. Lewis,	54	Capouse Shaft, L. I. & C. Co., 21st ward, Scranton,	Welsh, .
9	75	Thomas Dean, . .	50	Pierce Mines, J. H. & Co., Archbald borough, .	Irish, . .
9	76	Martin Barrett, .	30	Pierce Mines, J. H. & Co., Archbald borough, . .	Irish, . .
13	77	Michael McCann,	38	No. 1 Shaft, D. & H. C. Co., Carbondale City, . .	Irish, . .
13	78	Peter O'Neil, . .	39	No. 1 Shaft, D. & H. C. Co., Carbondale City, . .	Irish, . .
18	79	P. Thomas, . . .	.	Lucas Shaft, L. C. Co., 2d ward, Scranton, . . .	Welsh, .
18	80	Edward Gaughan,	35	Lucas Shaft, L. C. Co., 2d ward, Scranton, . .	Irish, . .
19	81	Martin Narey, .	23	Capouse Shaft, L. I. & C. Co., 21st ward, Scranton,	Irish, . .
20	82	M. McAndrews, .	52	Hillside Shaft, H. C. & I. Co., Pleasant Val. boro.,	Irish, . .
20	83	Michael McGenty,	. .	Eddy Creek Shaft, D. & H. C. Co., Olyphant boro.,	Irish, . .
20	84	Andrew Boland,	. .	Eddy Creek Shaft, D. & H. C. Co., Olyphant boro.,	Irish, . .
20	85	Dom. Connors, .	26	Phœnix Shaft, P. C. Co., Marcy township, ...	Irish, . .
24	86	Edward Thomas,	40	Central Shaft, D. L. & W.. 15th ward, Scranton, .	Welsh, .
25	87	Wm. Keating, .	16	Heidelberg Shaft, L. V. C. Co., Pittston township,	Irish, . .
26	88	Michael Kelly, .	16	Marvine Shaft, D. & H. C. Co., 1st ward, Scranton,	Irish, . .
27	89	Henry Harlow, .	24	Sloley Shaft, P. A. C. Co., Old Forge township, .	American,
May 1	90	John J. Thomas,	. .	National Slope, W. C. & Co., 20th ward, Scranton,	Welsh,
8	91	John McDonald,	40	Twin Shaft, P. C. Co., Pittston borough, ...	Irish, . .
9	92	P. C. McDonnell,	35	Pancoast Mines, P. C. Co., Dickson City borough,	Irish, . .
11	93	Daniel M. Davis,	. .	Belmont Mines, B. C. Co., Carbondale City, . .	Irish, . .
14	94	Martin Coyne, .	29	National Shaft, W. C. & Co., 20th ward, Scranton,	Irish, . .
15	95	John Brogan, . .	25	Pancoast Shaft, P. C. Co., Dickson City borough,	Irish, . .
15	96	William Banks, .	25	Pancoast Shaft, P. C. Co., Dickson City borough,	American,
15	97	Joseph H. Evans,	24	Dodge Shaft, D. L. & W., Lackawanna township,	Welsh, .
17	98	Edward Loftus,	31	Slope No. 6, Penna. C. Co., Hughestown borough,	Irish, . .
19	99	John Keating, . .	24	Barnum No. 2, Penna. C. Co., Marcy township, .	English, .
21	100	Daniel Brown, .	13	Phœnix Shaft, P. C. Co., Marcy township, ...	. . . . .
21	101	Grant Maxey, . .	15	Scranton C. Co., D. L. & W., Lack'a township, .	American,
23	102	Wm. McDermott,	17	Jermyn No. 2, D. & H. C. Co., Jermyn borough, .	Irish, . .
24	103	Patrick Malia, . .	53	Fair Lawn Slope, F. L. C. Co., 7th ward, Scranton,	Irish, . .
28	104	Thomas Harris, .	32	Taylor Shaft, D. L. & W., Lackawanna township,	Welsh, .
30	105	Wm. Richmond,	13	Barnum Shaft, Penna. C. Co., Marcy township, .	American,
June 1	106	John Maloney, .	23	Tunnel No. 1, Penna. C. Co., Pittston township, .	English, .
5	107	Thomas Langan,	24	Law Shaft, Penna. C. Co., Pittston township, . .	Irish, . .
11	108	James Thompson,	34	Shaft No. 7, Penna. C. Co., Jenkins township, . .	Scotch, .
11	109	George Harvey, .	11	Von Storch Breaker, D. & H. C. Co., 13th w., Scran'n,	Irish, . .
13	110	Jas. Dougherty,	14	Cayuga Shaft, D. L. & W.. 3d ward, Scranton, . .	Irish, . .
13	111	John Roderick, .	24	Sloan Shaft, D. L. & W., Lackawanna township, .	Welsh, .
14	112	Michael Stafford,	34	Pine Brook Shaft, L. I. & C. Co., 7th w., Scranton,	Irish, . .
14	113	Edward Hughes,	30	Law Shaft, Penna. C. Co., Pittston township, . .	Welsh, .
14	114	William Edwards,	13	Von Storch Mines, D. & H. C. Co., 2d w., Scranton,	Welsh, .
15	115	Robt. R. Edwards,	15	Von Storch Mines, D. & H. C. Co., 2d w., Scranton,	Welsh, .
15	116	James Scott, . .	13	Eaton Mines, J. S. & Co., Archbald borough, . .	American,
16	117	Milio. Spitisco, .	29	Lackawanna C. Co., New Shaft, Olyphant borough,	Polish, .
18	118	Benj. Thomas, .	35	Hampton Shaft, D. L. & W., Lackawanna township,	Welsh, .
18	119	David Gabrol, . .	20	Leggetts Creek Shaft, D. & H. C. Co., 1st w., Scranton,	Welsh, .
20	120	Alfred Mallette, .	17	Central Shaft, D. L. & W., 15th ward, Scranton, .	American,
20	121	Griff Watkins, .	38	Spring Brook Mines, H. C. & I. Co., Lack'a twp.,	Welsh, .
21	122	Peter Hoganson,	23	Brisbin Shaft, D. L. & W., 3d ward, Scranton, .	Swedish,
21	123	James Walker, .	18	Powderly Slope, D. & H. C. Co., Carbondale City,	Irish, .
22	124	Charles Ibell, .	24	Bellevue Slope, D. L. & W., Lackawanna twp., . .	English, .
26	125	Charles Ammen,	23	Pancoast Mines, P. C. Co., Dickson City borough,	American,
26	126	Michael Henely, .	46	Dodge Shaft, D. L. & W., Lackawanna township,	Irish, . .
27	127	Arthur Lewis, .	23	Eagle Shaft, N. C. Co., Pittston borough, . .	American,
27	128	Patrick Golden, .	17	Meadow Brook Tunnel, W. C. & Co., 20th w., Scran'n,	American,
July 2	129	F'd. Sherman, Jr.	14	Capouse Shaft, L. I. & C. Co., 21st ward, Scranton,	German, .
2	130	Wm. J. Jones, .	60	Von Storch Mines, D. & H. C. Co., 2d w., Scranton,	Welsh, .
9	131	Michael Cafferty,	24	Meadow Brook Shaft, W. C. & Co., 20th w., Scranton,	Irish, .
10	132	Anthony Lynch,	15	Brisbin Shaft, D. L. & W. R. R., 3d w., Scranton,	Irish, . .
10	133	Charles Owens, .	48	Central Shaft, D. L. & W. R. R., 15th w., Scranton,	English, .
12	134	Peter Soosong, .	36	Meadow Brook Shaft, W. C. & C., 20th w., Scranton,	German, .
12	135	Arthur Drake, . .	50	Lucas Shaft, L. C. Co., 2d ward, Scranton, . .	English, .
17	136	Thomas McHale,	21	Green Ridge Breaker, O. S. J. & Co., Dunmore bor.	Irish, . .
19	137	Lawrence Flynn,	25	Lucas Shaft, L. C. Co., 2d ward, Scranton, ...	Irish, . .
19	138	A. Granahan, . .	50	Brisbin Shaft, D. L. & W., 3d ward, Scranton, .	Irish, . .
23	139	Edward Mullen,	13	Central Shaft, D. L. & W., 15th ward, Scranton, .	Irish, . .
23	140	Michael Hughes,	38	Brisbin Shaft, D. L. & W., 3d ward, Scranton, .	Irish, . .
23	141	Thomas Miles, .	20	Barnum Shaft, Penna. C. Co., Marcy township, . .	Irish, . .
24	142	Wm. A. Price, .	45	Von Storch Mines, D. & H. C. Co., 2d w., Scranton,	Welsh, .
25	143	August Hahn, . .	48	Mosier Shaft, B. C. Co., Hughestown borough, . .	German, .

Continued.

Occupation.	Nature or Cause of Accident.	No. accident.
Car runner, . .	Two fingers cut off; caught between top of mine car and roof,	72
Office boy, . . .	Leg slightly injured; run over by mine car,	73
Miner, ...	Eye injured by a piece of coal flying from point of pick,	74
Laborer, ...	These two men slightly injured by fall of coal,	75
Miner, ...		76
Miner, ...	These two men slightly burned by an explosion of powder,	77
Miner, ...		78
Laborer, ...	These two men were slightly injured by a fall of roof,	79
Miner, ...		80
Laborer, ...	Knee slightly injured; caught between two mine cars,	81
Miner, ...	Slightly injured; fall of top coal,	82
Miner, ...	These men were slightly injured; caught between car and pillar,	83
Miner, ...		84
Miner, ...	Slightly injured; hit by a piece of coal flying from blast,	85
Miner, ...	Injured; explosion of powder; let spark from lamp drop into the powder,	86
Driver, ...	Slightly injured; caught between cars,	87
Driver, ...	Slightly injured; little finger cut off while in the act of coupling cars,	88
Laborer, ...	Injured; run over by loaded car,	89
Miner, ...	Cut on forehead and nose; a car jumped the track,	90
Miner, ...	Slightly injured on hip and ankle by pieces of coal flying from blast,	91
Miner, ...	Slightly injured by a car jumping off the track in mines,	92
. . . . .	Slightly injured by a fall of roof,	93
Miner, ...	Slightly burned by an explosion of gas,	94
Driver boss, . .	These men got on the carriage contrary to the requirements of law, as there was no safety appliance on carriage rope Jarred.	95
Car runner, . .	Ankle sprained. slipped on drum letting them drop down the shaft; the place was abandoned three days previous,	96
Roadman, . .	Slightly injured by lifting empty car on track,	97
Miner, . . .	Slightly injured; fell off mine car while in the act of barring down roof,	98
Laborer, ...	Ankle slightly injured by a fall of black rock,	99
. . . . .	Slightly injured by a kick from a mule,	100
Driver, ...	Foot slightly squeezed by mine cars,	101
Runner, . . .	Leg injured by mine car jumping the track,	102
Laborer, ...	Slightly burned by an explosion of gas,	103
Miner, ...	Injured by collision of loaded and empty trip of mine cars,	104
Driver, ...	Wrist hurt; caught between car and prop,	105
Miner, ...	Nose slightly injured; fall of bony coal,	106
Miner, ...	Foot slightly cut with an ax while preparing a prop in mines, before setting it,	107
Miner, . . .	Slightly cut on head by a piece of soapstone falling on it,	108
Slate picker, . .	Finger cut off; caught in end of screens,	109
Driver, ...	Thigh cut; caught between bumpers of cars in mines,	110
Laborer, ...	Slightly injured by a fall of top coal,	111
Roadman, . . .	Slightly burned by an explosion of gas,	112
Miner, ...	Slightly injured; relit match, an immediate explosion took place causing the injury,	113
Driver helper, .	Slightly injured; run over by mine car; car jumped track and mashed his leg,	114
Driver, ...	Slightly injured; fell on track, empty cars run on his legs, bruising them,	115
Driver, ...	Slightly injured; caught between car and pillar,	116
Laborer, ...	Injured about back; fall of top coal,	117
Laborer, ...	Slightly injured; mule knocked him down and tramped upon him,	118
Runner, ...	Slightly burned about the face; explosion of gas,	119
Driver, ...	Face badly cut; mule started suddenly and knocked him against the rib,	120
Miner, ...	Very slightly injured; fall of top coal,	121
Laborer, ...	Slightly injured; fall of rock,	122
Footman, . . .	Left leg caught between bumpers of cars at foot of slope,	123
Laborer, ...	Slightly injured; fall of roof,	124
Laborer, ...	Injured slightly by a fall of top rock,	125
Laborer, ...	Bad flesh wound on arm; hit by a piece of coal flying from a blast,	126
Laborer, ...	Injured slightly in back; a piece of coal fell out of face of chamber on him,	127
Driver, ...	Slightly injured by lifting car on track,	128
Driver, ...	Flesh wound on leg by being run on to by mine car,	129
Fire boss, . . .	Slightly injured by an explosion of gas,	130
Runner, . . .	Hand slightly injured; caught between sprag and car,	131
Driver, ...	Right eye slightly injured; kicked by a mule,	132
Miner, ...	Slightly injured; kicked over eye by a mule,	133
Miner, ...	Injured slightly on back; fall of top and bony coal,	134
Miner, ...	Slightly injured; slipped in breaker and hurt his leg,	135
Outside laborer,	Slightly injured; foot caught in sheave-wheel on top of plane at breaker,	136
Miner, ...	Injured slightly; premature blast,	137
Laborer, ...	Slightly injured; fell down shaft, a distance of about twenty feet,	138
Driver, ...	Slightly injured; run over by car (flesh wound),	139
Miner, ...	Big toe slightly bruised; fall of bony coal,	140
Laborer, ...	Slightly injured; fall of rider coal,	141
Miner, ...	Slightly injured by an explosion of gas,	142
Miner, ...	Injured slightly by a fall of top coal,	143

TABLE No. 3—

DATE.	No. accident.	Names.	Age.	Colliery where Accident Occurred.	Nationality.
July 30	144	Thos. O. Williams,	24	Continental Shaft, D., L. & W., Lackawanna twp.,	Welsh, .
Aug. 6	145	John Collins, .	15	Jermyn, No. 3, D & H. C. Co. & D. L & W., 13th w., Scran'n	Irish,
6	146	John Thiel, . .	48	Hyde Park Shaft, D., L. & W., 5th ward, Scranton,	German, .
7	147	John Phillips, . .	32	Archbald Shaft, D., L. & W., Lackawanna twp., .	Welsh, .
7	148	John Smith, . . .	17	Filler's Shaft, G. I. C. Co., Winton borough, . . .	American,
11	149	Mike Gedo, . . .	.	Grassy Island Shaft, D. & H. C. Co., Olyphant bor.,	. . . . .
11	150	Frank Colas, .	35	Mt. Pleasant Slope, W. T. S., 14th ward, Scranton,	Polish, .
11	151	Michael Mangan,	27	Shaft No. 6, Penn'a C. Co., Jenkins township, . .	Irish, . .
16	152	Wm. T. Davis, .	51	National Mines, W. C. & Co., 20th ward, Scranton,	Welsh, .
16	153	Henry Phillips, .	14	Phœnix Shaft, P. C. Co., Marcy township, . . .	American,
17	154	Patrick Dempsey,	32	VonStorch Mines, D. & H. C. Co., 2d ward, Scranton,	Irish, .
28	155	Rich'd Woodyatt,	28	Sloan Shaft, D., L. & W., Lackawanna township,	Welsh, .
30	156	John H. Roberts,	42	Brisbin Shaft, D., L. & W., 3d ward, Scranton, .	Welsh, .
Sept. 1	157	David Morgan, .	15	Capouse Shaft, L. I. & C. Co., 21st ward, Scranton,	Welsh, .
1	158	Michael Healey, .	33	Forest City Shaft, H C & I. Co., Clifford tp., Susq'a co.,	Irish, . .
4	159	Richard Philbin, .	40	Hyde Park Shaft, D. L. & W., 5th ward, Scranton,	Irish, . .
4	160	John C. Thomas, .	27	Mt. Pleasant Slope, W. T. S., 14th ward, Scranton,	Welsh, .
4	161	George Markey, .	21	Mt. Pleasant Slope, W. T. S., 14th ward, Scranton,	Welsh, .
4	162	Owen Flynn, . .	45	Green Ridge Slope, O. S. J. & Co., Dunmore boro',	Irish, . .
6	163	John McNally, .	23	Stark Mines, Penn'a C. Co., Lackawanna twp., .	American,
8	164	Wm. Counterman	28	Jermyn, No. 4, J. Jermyn, Dickson City borough,	American,
10	165	John Davis, . . .	19	Hampton Shaft, D., L. & W., Lackawanna twp., .	Welsh, .
11	166	Wm. J. Barber, .	25	Phœnix Shaft, P. C. Co., Marcy township, . . .	American,
11	167	Michael Coollcan,	45	Green Ridge Slope, O. S. J. & Co., Dunmore boro',	Irish, .
12	168	John Walsh, .	32	National Mines, W. C. & Co., 20th ward, Scranton,	Irish, . .
13	169	Mich. M'Govern,	38	National Mines, W. C. & Co., 20th ward, Scranton,	Irish, . .
14	170	John Gaughan, .	43	Brisbin Shaft, D., L. & W., 3d ward, Scranton, . .	Irish, . .
14	171	Pat. Mulhearn, .	14	Brisbin Shaft, D., L. & W., 3d ward, Scranton, . .	Irish, . .
14	172	John Finnegan, .	45	Leggett's Creek Shaft, D. & H. C. Co., 1st w., Scrant'n	Irish, . .
14	173	Peter Carney, . .	23	Leggett's Creek Shaft, D. & H. C. Co., 1st w, Scrant'n	Irish, . .
17	174	John Duffy, . . .	38	Scranton C. Co. Mines, D., L. & W., Lackaw'a tp.,	Irish, . .
18	175	John Walsh, . .	14	Continental Shaft, D., L. & W., Lackawanna twp.,	Irish, . .
18	176	James Davis, . .	35	Jermyn, No. 4, J. Jermyn, Dickson City borough,	English, .
18	177	John Long, . . .	21	Jermyn, No. 4, J. Jermyn, Dickson City borough,	American.
18	178	John Tierney, .	47	Hampton Mines, D., L. & W., Lackawanna twp.,	Irish, . .
19	179	James Connery, .	40	Shaft No. 10, Penn'a C. Co., Hughestown borough,	Irish, . .
19	180	Patrick Ruane, .	43	VonStorch Mines, D. & H. C. Co., 2d ward, Scranton,	Irish, . .
20	181	John Coleman, .	14	Eddy Creek Shaft, D. & H. C. Co., Olyphant boro', .	American,
21	182	Matthew Brennan	15	Mt. Pleasant Slope, W. T. S., 14th ward, Scranton,	American,
22	183	Michael Osbourne	20	Shaft No. 13, Penn'a C. Co., Lackawanna twp., .	Irish, . .
25	184	John Gilhooley, .	31	Law Shaft, Penn'a C. Co., Pittston township, .	American,
25	185	David Thomas, .	19	Leggett's Creek Shaft, D. & H. C. Co., 1st w., Scrant'n	American,
25	186	Walkin Price, .	15	Leggett's Creek Shaft, D. & H. C. Co., 1st w. Scrant'n	American,
25	187	Charles Duggan, .	14	Leggett's Creek Shaft, D. & H. C. Co., 1st w. Scrant'n	American,
26	188	D. W. Williams, .	40	Jermyn, No. 3, Shaft D. & H. C Co., 13th w., Scran'n	Welsh, .
26	189	Thomas Henley, .	40	Dodge Shaft, D., L. & W., Lackawanna township,	Irish, . .
27	190	Conrad Brayley, .	29	Brisbin Shaft, D., L. & W., 3d ward, Scranton, . .	German, .
27	191	Thomas M'Hale, .	16	Jermyn, No. 3, S'ft, D. L. & W. & D. & H. C. C., 13th w, Sc'n	Irish, .
27	192	Thomas Hoy, . .	13	Fairmount Shaft, A. M. & Co., Pittston township,	American,
28	193	John M'Nulty, .	15	Twin Shaft, P. C. Co., Pittston borough, ...	American,
Oct. 1	194	Michael Malid, . .	21	Law Shaft, Penn'a C. Co., Pittston township, . .	Irish, .
2	195	George Bennett, .	12	Lucas Shaft, L. C. Co., 2d ward, Scranton, . .	American,
3	196	Michael Hastings,	27	Fairmount Shaft, A. M. & Co., Pittston township,	American,
3	197	John Mackin, .	15	Taylor Shaft, D., L. & W., Lackawanna township,	Irish, . .
4	198	Ed. Connelly, .	15	Taylor Shaft, D., L. & W., Lackawanna township,	Irish, .
4	199	Thomas Charles, .	43	Archbald Shaft, D., L. & W., Lackawanna twp., .	Welsh, .
4	200	Bernard M'Nulty,	11	Sloan Breaker, D., L. & W., Lackawanna twp., .	Irish, . .
8	201	Benj. Griffiths, .	30	Oxford Shaft, D., L. & W., 5th ward, Scranton, .	Welsh, .
10	202	Joseph Davis, . .	17	Capouse Shaft, L. I. & C. Co., 21st ward, Scranton,	Welsh, .
12	203	Frank Pish, . . .	.	White Oak Mines, D. & H. C. Co., Archbald boro',	Hungari'n
13	204	John Duclis, . .	32	Shaft No. 6, Penn'a C. Co., Jenkins township, .	Hungari'n
13	205	Daniel Golden, .	40	Gipsy Grove Mines, Penn'a C. Co., Dunmore boro',	Irish, . .
13	206	Wm. Edwards, .	13	VonStorch Mines, D. & H. C. Co., 2d ward, Scranton,	Welsh, .
13	207	Patrick Conlon, .	.	Spring Brook Mines, J. H. S. & Co., Lackaw'a tp.,	Irish, .
16	208	James Corcoran, .	65	White Oak Mines, D. & H. C. Co., Archbald boro',	Irish, .
17	209	Eugene Griskien,	15	Taylor Mines, D., L. & W., Lackawanna twp., . .	Irish, . .
19	210	Henry Jones, . .	28	Taylor Mines, D., L. & W., Lackawanna twp., . .	Welsh, .
24	211	Michael Rosea, .	.	Greenwood Mines, P. A. C. Co., Lackawanna tp.,	Italian, .
26	212	David Thomas.	20	Continental Shaft, D., L. & W., Lackawanna tp.,	Welsh, .
27	213	Lot Lake, . . .	38	Continental Shaft, D., L. & W., Lackawanna tp.,	Welsh, .
27	214	David Hughes, .	24	Continental Shaft, D., L. & W., Lackawanna tp.,	Welsh, .
29	215	Patrick Joyce, .	.	Shaft No. 7, Penn'a C. Co., Jenkins township. . .	Irish, . .
29	216	James Kelly, . .	.	Shaft No. 7, Penn'a C. Co., Jenkins township, . .	Irish, . .
29	217	Hugh Devers, .	.	Shaft No. 7, Penn'a C. Co., Jenkins township, .	Irish, . .
29	218	J. W. Thompson,	.	Shaft No. 7, Penn'a C. Co., Jenkins township, . .	Scotch, .

Continued.

Occupation.	Nature or Cause of Accident.	No. accident.
Miner,	Slightly injured by a fall of top coal,	144
Driver,	Injured slightly on head; kicked by a mule,	145
Miner,	Slightly injured by a fall of top coal,	146
Laborer,	Injured slightly by a fall of coal,	147
Driver,	Slightly injured by a fall of coal,	148
. . . . .	Slightly injured; premature blast,	149
Laborer,	Slightly injured; fall of bony coal,	150
Laborer,	Slightly injured; hit by a piece of coal flying from blast,	151
Miner,	Injured slightly by premature blast,	152
Driver,	Slightly injured; caught between light cars in mines,	153
Miner,	Slightly injured; fall of roof,	154
Laborer,	Foot slightly injured; fall of rock,	155
Miner.	Slightly injured; fall of bony coal,	156
Driver,	Slightly bruised by a trip of empty cars running over him,	157
Miner,	Injured slightly by a fall of rock roof,	158
Miner,	Slightly injured; fall of coal from face of chamber,	159
Miner,	Both these men were slightly injured by a fall of the top bench of coal,	160
Laborer,	Both these men were slightly injured by a fall of the top bench of coal,	161
Miner,	Hand and arm slightly injured by a blast,	162
Miner,	Slightly injured; a piece of coal rolled over and dislocated his ankle,	163
Laborer,	Arm crushed (no bones broken) while coupling cars outside,	164
Driver,	Slightly injured; fell while in the act of coupling cars,	165
Miner,	Injured slightly; premature blast,	166
Miner,	Slightly injured; premature blast,	167
Miner,	Slightly injured by an explosion of gas,	168
Miner,	Fingers squeezed between mine car rail and top coal in chamber,	169
Miner,	Slightly injured by a piece of coal flying from a blast,	170
Driver,	Injured slightly; fell off culm car and car ran against him,	171
Miner,	Both of these men were slightly injured (burned) by an explosion of fire-	172
Laborer,	damp,	173
Miner,	Slightly injured by a premature blast,	174
Driver,	Injured slightly; kicked by a mule,	175
Miner,	Both these men were injured; powder exploded in hole while in the act of	176
Laborer,	ramming it back in hole with end of drill,	177
Miner,	Slightly injured by fall of roof, while restanding prop,	178
Laborer,	Slightly injured by fall of rock roof,	179
Laborer,	Injured slightly by a fall of coal,	180
Driver,	Slightly injured; fell in front of a trip of empty cars, and they ran on him,	181
Driver,	Slightly injured; squeezed between car and pillar,	182
Footman,	Injured slightly; caught between car and pillar,	183
Miner,	Ankle slightly injured; a piece of coal rolled over on it,	184
Runner,	First joint of thumb cut off while in the act of putting car on track,	185
Driver,	Slightly injured; squeezed between car and prop,	186
Door boy,	Injured slightly; squeezed between car and prop,	187
Miner,	Slightly injured by a premature blast,	188
Miner,	Slightly injured by a fall of bony coal,	189
Miner,	Slipped and run blasting-needle through his thigh, (not serious,)	190
Driver,	Bruised on back and legs; an empty car ran over him,	191
Door boy,	Head squeezed between two loaded cars, (not serious,)	192
Driver,	Fingers mashed; afterwards amputated; mine cars ran over them,	193
Laborer,	Slightly injured; fall of roof,	194
Slate picker,	Toes slightly bruised; caught in cog-wheels of breaker,	195
Miner,	Slightly injured; fall of coal,	196
Driver,	Injured slightly; fell under car on culm dump,	197
Driver,	Slightly injured on foot; fell under cars,	198
Laborer,	Injured slightly on ankle by a fall of rock,	199
Slate picker,	Slightly injured; run over by railroad car outside at breaker,	200
Miner,	Injured slightly by a premature blast,	201
Driver,	Hand slightly injured; caught between bumpers of mine cars,	202
Laborer,	Shoulder-blade put out of joint and leg bruised by a loaded mine car,	203
Laborer,	Back and hand slightly injured; fall of coal,	204
Laborer,	Slightly injured; fall of roof,	205
Driver helper,	Injured slightly; fell under loaded car,	206
Miner,	Leg slightly injured; fall of rock,	207
Miner,	Leg slightly injured; car jumped the track and caught it,	208
Driver,	Slightly injured; squeezed between car and prop,	209
Miner,	Injured slightly; fall of roof,	210
Miner,	Slightly injured by a premature blast,	211
Outside planem'n	Injured; thrown off a mule,	212
Miner,	Head slightly injured; fall of coal,	213
Miner,	Thigh slightly injured; hit by a piece of steel from wedge,	214
Miner,		215
Laborer,	These men, Joyce, Kelly, and Devers, slightly burned by an explosion of gas,	216
Laborer,		217
Ass't mine boss,	Slightly injured by concussion, caused by same explosion,	218

TABLE No. 3—

DATE.	No. accident.	Names.	Age.	Colliery where Accident Occurred.	Nationality.
Oct. 29	219	H. Weatherhog, .	13	Central Shaft, D. L. & W., 15th ward, Scranton, .	English, .
29	220	Wm. W. Griffith,	29	Scranton C. Co., D. L. & W., Lackawanna twp., .	Welsh, .
29	221	M. McAndrews,	12	Eaton Breaker, J. S. & Co., Archbald borough, . .	American,
30	222	James Flannery,	50	National Mines, W. C. & Co., 20th ward, Scranton,	Irish, .
31	223	Joseph Coonay, .	14	Bridge Mines, B. C. Co., 14th ward, Scranton, .	American,
Nov. 1	224	Mich'l M. Moran,	16	National Mines, W. C. & Co., 20th ward, Scranton,	American,
2	225	Peter Seelzer, . .	38	Taylor Mines, D. L. & W., Lackawanna township,	German,
5	226	James O. Boyle, .	29	Shaft No. 4, Penna. C. Co., Pittston township, . .	Irish, . .
6	227	Patrick Laugan,	45	Shaft No. 2, Penna. C. Co., Dunmore borough, .	Irish, . .
8	228	Bryan Duffy, . .	45	Dodge Shaft, D. L. & W., Lackawanna township,	Irish, . .
8	229	John Roberts, .	16	Brisbin Shaft, D. L. & W., 3d ward, Scranton, . .	Welsh, .
8	230	Patrick Moran, .	38	Brisbin Shaft, D. L. & W., 3d ward, Scranton, . .	Irish, . .
8	231	Michael Pace, . .	40	Fairmount Shaft, A. M. & Co., Pittston township,	Irish, . .
10	232	Dave Pry, Jr., .	15	Bellevue Shaft, D. L. & W., Lackawanna township,	American,
12	233	Peter Cummings,	25	Taylor Shaft, D. L. & W., Lackawanna township,	Prussian,
12	234	Michael Grahan,	45	Greenwood Mines, P. A. C. Co., Lackawanna twp.,	Irish, . .
14	235	John McHale, .	14	Pierce Mines, J. S. & Co., Archbald borough,	American,
19	236	Charles Watkins,	17	Capouse Mines, L. I. & C. Co., 21st w., Scranton,	American,
20	237	Grant Sheafer, .	16	Leggett's Creek Mines, D. & H. C. Co., 1st w., Scran'n	American,
20	238	Thomas Lavin, .	26	Scranton C. Co. Mines, D. L. & W., Lack'a twp.,	Irish,
23	239	George Keenin, .	15	Olyphant No. 2, D. & H. C. Co., Olyphant borough,	American,
23	240	Evan Thomas, . .	13	Capouse Mines, L. I & C. Co., 21st ward, Scranton,	American,
23	241	William Crone, .	36	Pine Brook Shaft, L. I. & C. Co., 7th ward, Scranton,	German,
26	242	John Creeden, .	17	Hillside Shaft, H. C. & I. Co., Pleasant Val. boro.,	American,
27	243	Charles Shear, . .		Grassy Island Shaft, D. & H. C. Co., Olyphant boro.,	English, .
27	244	Peter Cain, . .	50	Keystone Tunnel, H. C. & I. Co., Carbondale twp.,	Irish, . .
30	245	William Graham,	18	Shaft No. 12, Penna. C. Co., Pleasant Val. boro.,	Scotch, .
30	246	A. Gallagher, .	32	Von Storch Mines, D. & H. C. Co., 2d w., Scranton,	Irish, . .
30	247	Patrick Connell,	25	Hampton Mines, D. L. & W., Lackawanna twp., .	Irish, . .
Dec. 5	248	James Devine, .	26	Pine Brook Shaft, L. I. & C. Co., 7th ward, Scranton,	Irish, . .
6	249	John Corcoran, .	22	Pine Brook Shaft, L. I. & C. Co., 7th ward, Scranton,	Irish, . .
6	250	John Davis, . .	15	Pyne Shaft, D. L. & W., Lackawanna, township,	Welsh, .
6	251	Philip Andras, .	27	Mount Pleasant Mines, W. T. S., 14th w., Scranton,	Hungar'n
6	252	James Carney, .	45	Green Ridge Slope, O. S. J. & Co., Dunmore boro.,	Irish, . .
7	253	R. W. Hopkins, .	43	Continental Mines, D. L. & W., Lackawanna twp.,	Welsh,
7	254	Richard Thomas,	25	Oxford Shaft, D. L. & W., 5th ward, Scranton, . .	Welsh, .
7	255	David Williams,	20	Oxford Shaft, D. L. & W., 5th ward, Scranton, . .	Welsh, .
8	256	Henry Hall, . .	13	Phœnix Shaft, P. C. Co., Marcy township, . .	American,
10	257	Samuel Shawman,	21	Continental Mines, D. L. & W., Lackawanna twp.,	German,
11	258	Patrick McHale,	55	Shaft No. 10, Penna. C. Co., Hughestown boro., .	Irish, . .
13	259	George Bradly, .	23	Eagle Shaft, Penna. C. Co., Pittston borough, . .	Irish, .
17	260	Ambro Gibson, .	15	Bridge Mines, B. C. Co., 14th ward, Scranton, . .	Irish, . .
19	261	John Ryan, . . .	. .	Lucas Shaft, L. C. Co., 2d ward, Scranton, ...	Irish, . .
19	262	Frank Riley, . .	. .	Lucas Shaft, L. C. Co., 2d ward, Scranton, ...	Irish, . .
19	263	Michael Fadden,	13	Jermyn No. 3, D. L. & W. & D. & H. C. Co., 13th w., Sc'n,	Irish, . .
27	264	Patrick Winn,	40	Slope No. 2, Penna. C. Co., Jenkins township, . .	Irish, . .
27	265	George Dickson,	15	Central Breaker, Penna. C. Co., Pleasant V. boro.,	American,
29	266	P. C. McDonnell,	39	Pancoast Mines, P. C. Co., Dickson City borough,	Irish, . .
29	267	Michael Mahon, .	16	White Oak Mines, D. & H. C. Co., Archbald boro.,	American,
29	268	Thomas Quinan, .	18	Shaft No. 10, Penna. C. Co., Hughestown borough,	American,

NOTE.—There were 268 slight accidents.

Continued.

Occupation.	Nature or Cause of Accident.	No. accident.
Door boy,	Slightly injured; thrown off mule's back,	219
Miner,	Slightly burned by an explosion of gas,	220
Slate picker,	Slightly injured; fell off steps outside of breaker,	221
Laborer,	Eye slightly injured; a piece of coal flew from pick and hit it,	222
Driver's helper,	Injured slightly; thrown off mule's back while going to barn,	223
Driver's helper,	Ankle dislocated; the hoisting carriage caught his foot,	224
Laborer,	Slightly injured on head; fall of roof,	225
Miner,	Injured slightly; fall of rock roof,	226
Miner,	Slightly injured; set cartridge off when putting it into hole,	227
Miner,	Injured; fall of coal and slate while drilling under it,	228
Driver,	Slightly burned; clothes caught fire by putting lighted wick in his pocket,	229
Laborer,	Injured slightly; hit in eye by piece of coal flying from point of pick,	230
Miner,	Slightly injured; coal fell on him while mining under it,	231
Driver,	Injured slightly; kicked by a mule,	332
Laborer,	Injured; severe cuts on head; fall of roof,	233
Miner,	Slightly injured; hands and face burned; cartridge exploded in his hands,	234
Driver,	Injured slightly; kicked by a mule,	235
Driver,	Slightly injured; jammed between mine car and pillar,	236
Driver,	Injured slightly; car run over him on culm dump,	237
Laborer,	Slightly injured on head; fall of bony coal,	238
Driver,	Cut over eye by a kick from a mule,	239
Driver,	Severely injured; kicked by a mule,	240
Miner,	Slightly injured; hit on head and back by coal from blast,	241
Runner,	Slightly injured; caught by cars in mines,	242
Miner,	Injured; cartridge exploded while forcing it into hole,	243
Miner,	Slightly injured; hit by coal from blast,	244
Laborer,	Injured slightly; fall of top coal,	245
Miner,	Slightly burned by setting fire to loose powder,	246
Laborer,	Slightly injured by a fall of rock roof,	247
Miner,	Slightly injured by explosion of powder; cartridge set off by his lamp,	248
Laborer,	Injured slightly; hole missed; cartridge exploded while forcing it back in hole,	249
Driver,	Slightly injured; kicked by a mule,	250
Outside laborer,	Slightly injured; caught between car and culm trestle,	251
Track layer,	Slightly injured by a runaway trip of cars on slope,	252
Miner,	Two fingers cut off; caught between rope and pulley in chamber,	253
Miner,	Both men worked together; Thomas burned by an explosion of gas; Wil-	254
Laborer,	liams' hand hurt by falling on coal; (both slightly,)	255
Driver,	Slightly injured; fingers caught by car wheel,	256
Breaker engineer	Injured slightly; fingers caught by crank and connecting rod,	257
Miner,	Slightly injured by premature explosion of a blast,	258
Laborer,	Injured slightly by an explosion of gas,	259
Driver,	Slightly injured; hit by stretcher while hitching to cars,	260
Miner,	Injured slightly by a fall of rock,	261
Laborer,	Slightly injured by same fall of rock,	262
Door boy,	Injured slightly on hip; caught between car and pillar,	263
Miner,	Slightly burned by an explosion of gas,	264
Driver,	One rib broken; caught between body and truck of a culm car,	265
Miner,	Slightly injured; fall of roof,	266
Runner,	Left leg slightly injured; caught between loaded cars,	267
Laborer,	Fingers mashed by a car running over them,	268

TABLE No. 4.—*The number of each class of employés at each colliery in the and a portion of Wayne and Susquehanna counties,*

MISCELLANEOUS

NAMES OF COLLIERIES.	NUMBER OF PERSONS EMPLOYED INSIDE.							NO. OF		
	Bosses.	Miners.	Laborers.	Drivers and runners.	Door-boys.	All company men.	Total inside.	Bosses.	Mechanics.	Head and plate men.
1. Everhart,	1	20	20	11	. . .	3	55	1	4	5
2. Eagle Shaft,	. .	.	.	.	.	.	. .	.	.	.
3. Tompkin's Shaft,	3	23	14	8	3	8	59	2	4	4
4. Fairmount Shaft,	1	40	35	18	9	6	109	1	5	6
5. Beaver Slope,	1	5	5	3	2	1	17	1	1	.
6. Twin Shaft,	2	35	20	21	4	12	94	1	4	6
7. Butler Shaft and Slope,	2	31	17	20	4	4	78	3	3	7
8. Heidelberg Shaft,	1	40	40	22	6	25	134	1	6	5
9. Florence Shaft,	1	20	20	4	1	7	53	1	2	4
10. Mosier Shaft,	2	42	36	20	1	6	107	3	4	9
11. Phœnix Shaft,	1	35	35	11	4	9	95	1	3	5
12. Columbia Tunnel,	1	11	11	4	2	2	31	1	3	2
13. Stetler Shaft,	1	90	105	35	10	40	281	1	4	5
14. Hillside Shaft,	1	56	56	48	15	16	192	1	6	8
15. Spring Brook,	1	37	37	19	5	16	115	1	9	4
16. Dunn Shaft and Slope,	1	10	10	2		5	23	1	3	3
17. Sibley Shaft,	1	57	10	20	8	11	107	1	4	5
18. Greenwood Shaft, Slope, and Tunnels,	2	98	73	44	16	36	269	1	12	9
19. National Shaft and Slope,	1	60	18	18	6	15	118	1	4	8
20. Meadow Brook Tunnel,	1	45	15	23	7	11	102			
21. Meadow Brook Shaft,	1	100	40	37	15	15	208	1	8	4
22. Bridge Slope,	2	45	45	23	11	13	139	5	4	4
23. Mount Pleasant Slope,	1	67	67	39	11	12	197	1	5	7
24. Caponse Shaft,	2	145	154	70	19	53	443	1	14	9
25. Pine Brook Shaft,	1	27	27	7	1	64	127	1	6	3
26. Fair Lawn Slope,	1	30	60	15	5	2	113	1	2	4
27. Green Ridge Slope,	1	115	100	55	15	24	310	1	6	7
28. Lucas Shaft,	1	61	79	27	4	29	201	1	5	7
29. * Elk Hill Tunnel,	1	34	23	17	6	5	86	2	3	4
30. Pancoast Shaft and Slope,	1	40	40	16	6	11	114	1	12	4
31. Jermyn. No. 4 Shaft,	1	60	60	45	11	25	202	1	6	4
32. Lackawanna Coal Company Shaft,	1	45	40	25	5	12	128	1	6	7
33. Filer's Shaft,	1	75	25	40	10	20	171	1	4	10
34. Filer's Slope,	1	40	10	15	6	15	87	1	4	6
35. Pierce Coal Company's Tunnel,	1	96	50	26	8	8	189	1	6	7
36. Eaton Shaft, Slope, and Tunnels,	2	117	17	30	5	10	181	2	9	7
37. Erie Shaft,	1	106	18	28	4	19	176	1	7	9
38 Keystone Tunnel,	1	72		11	1	8	93	1	3	7
39. Forest City Shaft and Tunnel,	1	46	45	11	4	10	117	1	9	5
40. Belmont Drifts,	1	50	15	23	5	6	100		2	4
Total,	48	2,126	1,492	912	255	593	5,426	47	202	214

PENNSYLVANIA

41. No. 8 Breaker,	Shaft No. 1,	. . .	32	32	5	2	4	75	1	2	5
	Shaft No. 3,	1	43	41	12	3	8	108	1	2	6
	Slope No. 6,	. .	8	8	3	. . .	3	22		1	3
42. Shaft No. 4,	14 foot vein,	1	74	8	17	5	8	113	1	3	7
	Marcy vein,										
43. No. 6 Breaker,	Shaft No. 5,	1	36	44	17	5	10	113	1	4	6
	Shaft No. 6,	1	39	32	18	4	15	109	1	5	6
	Shaft No. 11,		17	21	9	2	6	55		2	5
44. Shaft No. 7,		1	46	46	20	4	21	138	1	4	6
45. No. 10 Breaker,	Shaft No. 9	1	55	44	17	4	10	126		4	8
	Shaft No. 10, 7-ft. vein,										
	Shaft No. 10, 14-ft. vein,	1	12	15	9	1	6	44	1	2	4
	Shaft No. 10, (Marcy,)	1	72	64	24	6	14	181	1	4	8

* Breaker burned down January 25, 1883.

Eastern district of Luzerne and Carbon counties, now including all of Lackawanna for year ending 31st day of December, A. D. 1883.

COAL COMPANIES.

Persons Employed Outside.														
Slate pickers.	Drivers and runners.	All company men.	Total outside.	Total inside and out.	Number of horses and mules.	Number of kegs of powder used in 1883.	Number of tons of coal mined in 1883	Number of days worked in 1883.	Number of persons killed.	Number of persons injured.	Tons of coal mined per life lost.	Tons of coal mined for each person injured.	Tons of coal mined for each employee.	Number.
25	5	10	50	105	18	1,150	40,731	250	.	2	7	20,365½	388	1
. .	. .	.	.	.	.	.	12 717	. .	. .	1	.	.	. . .	2
18	2	6	36	95	9	620	9 955	106	. . .	. . .	. . .	. . .	104.7	3
38	3	6	59	168	15	1,734	35 917	152	.	3	. . .	11,972	213.¾	4
3		1	6	23	3	420	14 779	262			. . .		642	5
34	1	10	56	150	20	2 631	39.472	274	1	1	. .	. .		6
30	2	9	54	132	18	2 253	45 779	266			. .	. .	. .	7
3	2	45	62	196	23	2.954	96 600	230½	.		. .			8
18	2	12	39	92	9	520	13.839	150		1	. . .	13 839	150	9
35	2	10	63	170	22	2 350	80 031	281½	1	2	. . .			10
24	3	7	43	138	20	2,552	48 537	243	.	6	. .	8,089	351	11
10	1	2	19	50	5	116½	4 620	46					93	12
43	1	9	63	344	51	5 820	152 340	229	2	1	76,170	152,340	443	13
12	3	19	49	241	33	2 431	66 450	234¾	1	3	66 450	22,150	275.7	14
20	7	22	63	178	31	{ 354	9 052	68	}	3		11,178	188.4	15
						{ 850	33.536	101						
18	2	6	33	61	5	81	1,080	20		. .	. . .	.	.	16
45	1	15	71	178	18	2 828	54 190	198		2	. .	. . .	. .	17
75	24	36	157	426	56	6,935	141.770	223	3	2			.	18
50	7	23	93	313	35	5 231	141,236	218½	} 1	5 } 12	141,236	830	451	19 } 20
66	7	22	108	316	35	6 006	150 173	227.6	1	2	150,173	75,086	475	21
72	7	33	125	264	42	2 905	81.065	224½		4		20 267	492	22
60	5	8	86	283	34	3,900	130,000	223.7	3	5	43,333	26 000	456	23
77	5	34	140	583	84	9 625	350.352	211.2	1	15	350,352	23 357	600	24
7	1	18	36	163	12	1,336	56.848	152	2	5	28.424	11 369	348	25
25	4	3	39	152	15		30 669	150	3	3	10.223	10 223	201	26
50	2	30	36	406	51	6,738	165.200	245		4		41,300	406	27
35	10	36	94	295	23	. .	70,000		.		. .			28
34	2	8	53	139			2 538	14			. . .	. . . .	. . .	29
30	2	25	74	188	21	2 443	54 576	209		6		9.113	290	30
28	4	30	73	275	26	3 142	97 805	238¾	1	2	97,805	48,902	355	31
22	2	25	63	191	25	2 800	90 200	242	.	2		45 100	472	32
55	2	40	112	283	41	2 654	79 638	221	. .	. . .		. .	.	33
30	3	12	56	143	16	1 381	48 234	226		. . .	. . .	.	.	34
60	8	20	102	291	24	1 945	113.207	211	2	3		. .	.	35
42	8	29	97	278	50	3.348	101 969	245¾		3				36
22.	3	21	63	239	30	2.845	91.496	240½	1	2	91,496	45,748	354.4	37
6	2	8	26	119	18	1.422	48 094	211		2		24.047	407 5	38
14	4	12	45	162	22	1.553	29.058	175½	. .	3	. . .	9 686	185	39
25	1	20	52	152	20	2 628	53,129	259			. . .			40
1,261	150	682	2,554	7 980	. .	. . .	2,886,975							

COAL COMPANY.

10	2	2	22	97	8	. . .	38.491	250	.	. .	. . . .	. . . .	397	}
16	5	8	33	146	16	. . .	62,829	250	. .	1	. . . .	62,829	430	} 41
7	3	2	16	38	6	. . . .	24 877	250	.	1	. . . .	24,877	654	}
2	. .	7	20	133	14	. . . .	75,907	250	2	1	37 953	75,907	570	42
26	8	8	53	166	23	. . .	75,472	251	. . .	3	. . . .	25,157	454	}
26	5	7	50	159	23	. . .	57.806	251	.	2	. . . .	28,903	354	} 43
18	5	4	34	89	13	. . .	31.910	251	.	. .	. .	. .	358	}
4	. . .	13	28	163	22	. . .	94 038	248	3	7	31.346	13,434	566	44
20	4	2	33	164	23	. . .	93,216	236½	2	2	46,608	46,608	568	}
8	2	4	21	65	12	. . .	17,737	161	.	. . .	. . . .	. . .	273	} 45
20	4	10	47	228	25	. . .	96 137	230	. .	4	. . . .	24,034	421	}

TABLE No. 4—
PENNSYLVANIA COAL

NAME OF COLLIERIES.	NUMBER OF PERSONS EMPLOYED INSIDE.							NO. OF		
	Bosses.	Miners.	Laborers.	Drivers and runners.	Door-boys.	All company men.	Total Inside.	Bosses.	Mechanics.	Head and plate men.
46. Central Breaker, { Shaft No. 13,	1	14	22	7	2	3	54	..	3	1
{ Shaft No. 12,	1	40	40	13	2	11	107	1	4	4
{ Law Shaft,	1	40	44	12	7	9	113	1	7	5
47. Slope No. 2,	1	26	27	13	1	15	83	1	5	8
48. Slope No. 4,	1	46	46	19	1	11	124	1	5	4
49. Tunnel No. 1,	1	42	16	11	3	5	78	1	3	7
50. Stark Shaft and Breaker,	1	44	24	12	4	10	95	1	6	8
51. Barnum Breaker, { Shaft No. 1, 7-ft. vein,	1	54	54	19	9	9	146	1	5	6
{ Shaft No. 1, 14-ft. vein.	...	20	20	7	3	3	53	..	2	2
{ Shaft No. 2, 7-ft. vein, }	1	54	54	19	10	10	148	1	5	7
{ Shaft No. 2, 14-ft. vein, }										
Number mining and preparing coal, ..	17	809	702	283	78	196	2 085	16	78	116
52 New Shaft, Lackawanna,	...	4	.	..	..		4	..	2	1
53. Carbon Hill,	1	4	4	...	...	1	10	..	2	2
54. New Shaft, Cooper farm, sinking, ..	1	33	12		...	.	46		2	2
55. Eagle Shaft,	1	3	4	4	...	3	15		3	
56. No. 2 Breaker,				...	..	..	....	1	1	7
57. Barnum, No. 1, sinking,	2	31	3	..	..	..	36	.	1	2
58. Sundry labor—Engineers, carpenters, teamsters, blacksmith, &c.,			..	.	...	.	..	.	40	..
Opening mines, &c.,	5	75	23	4	..	4	111	1	51	14
Grand total,	22	884	725	287	78	200	2 196	17	129	130
59. Shaft No. 2,	1	50	40	9	6	9	115	1	1	5
60. Shaft No. 3,	1	39	39	14	3	7	103	1	2	11
61. Shaft No. 4,	.	46	47	14	6	4	117	.		1
62. Dunmore Breaker,	...	...			..	..	.	3	1	5
63. Dunmore Screens,		..	.	.	.	..	.	2	1	10
Total,	24	1 019	851	324	93	220	2,531	24	134	162

DELAWARE, LACKAWANNA AND

64. Diamond No. 2 Shaft, G vein,	1	72	72	30	4	15	194	1	17	8
65. Diamond No. 2 Slope, G vein,	1	23	23	20	3	14	84	.	18	11
66. Diamond Tripp Slope, O vein,	1	50	40	31	4	25	151	.		..
67. Hampton Shaft,	1	110	62	51	14	30	268	1	11	15
68. Bellevue Shaft, Clark,	1	52	52	18	2	12	137			
69. Bellevue Slope,	1	41	41	14	2	12	111	1	14	14
70. Scranton Coal Company,	1	63	60	20	5	14	163	1	8	10
71. Continental Shaft,	1	82	70	40	6	25	224	1	9	9
72. Oxford Shaft,	1	30	27	6	3	13	80	1	5	4
73. Taylor Shaft and Drift,	1	89	89	42	9	30	260	1	11	9
74. Dodge Shaft,	1	78	78	28	5	20	210	1	8	11
75. Hyde Park Shaft,	1	93	95	41	9	28	267	1	8	7
76. Central Shaft,	2	102	104	41	11	33	293	1	10	6
77. Archbald Shaft,	1	74	70	23	5	18	191	1	11	7
78. Cayuga Shaft,	1	77	50	39	6	26	199	1	7	5
79. Sloan Shaft,	1	70	70	24	7	19	191	1	7	7
80. Brisbin Shaft,	1	95	94	35	9	24	258	1	7	6
81. Pyne Shaft,	1	95	85	44	10	18	253	1	7	9
82. Jermyn, No. 3, Shaft,	1	93	93	47	19	25	278	1	8	8
83. Stowe Shaft,	..	21	Trippshaft slukers,			30	51	.	..	..
84. Surveyors,	.	16	..	..	..	16	16		57	.
Total,	20	1,410	1,275	594	133	447	3 879	16	290	146

Continued.

COMPANY—Continued.

Persons Employed Outside.				Total inside and out.	Number of horses and mules.	Number of kegs of powder used in 1883.	Number of tons of coal mined in 1883.	Number of days worked in 1883.	Number of persons killed.	Number of persons injured.	Tons of coal mined per life lost.	Tons of coal mined for each person injured.	Tons of coal mined for each employee.	No. of collieries.
Slate-pickers.	Drivers and runners.	All company men.	Total outside.											
4	6	5	19	73	17	....	19 754	248	..	1	....	19 754	270	46
15	4	9	37	144	16	...	62, 806	232	..	2		31, 403	436	
17	8	12	50	163	20	...	75 041	248	3	4	25 013	18, 760	460	
2	..	2	18	101	16	..	48, 134	250	..	1	.	48 134	474	47
1	6	19	27	151	30	.	75, 289	250	...	2	...	37 644	499	48
..	1	4	16	94	11	...	40, 683	250	...	2	....	20 341	437	49
35	4	11	65	160	16	....	61, 356	248	...	4	...	15, 339	383	50
16	7	9	44	190	20	...	107, 187	250	..	2	. ...	53, 593	564	
7	2	3	16	69	6	...	39, 163	250	..	1	....	39, 163	568	51
17	8	9	47	195	20	..	110, 733	250	..	1	...	110 733	568	
271	84	141	706	2, 791	357		1, 308, 566		10	41	130, 856	31, 916	469	
.	1	1	5	9	1	....	...	.	4		.	.	.	52
....	..	1	5	15	3	....	.. ..	....	.	...	...	....	....	53
..	2	4	10	56	2	....	.....	..	1	.	....	.....	..	54
.	1	5	9	24	4	....	.....	...	1	...	....	.....	...	55
50	...	7	66	66	..	..	....	.	.	...	..	...	.	56
..	...	4	7	43	1	...	...	....	...	...	...	.....	..	57
...	...	59	99	99	58	Teams, &c.: extra and cripple mules.								58
50	4	81	201	312	69	...	....		6					
321	88	222	907	3, 103	426				16	41				
.	1	6	14	129	11	..	60 067	250		2		30, 033½	465½	59
31	6	14	65	168	21	..	53. 782	248¼	1	..	53 782			60
.	.	..	1	118	14	..	68, 003	248¼	.	1	..	68, 003	553¼	61
38	6	8	58	58		...	. ..	.	..	.	...	...		62
37	3	14	67	67	.	..	.. ..	.	....		....	..	...	63
427	104	264	1, 112	3 643	472	.	1, 490, 418							

WESTERN RAILROAD COMPANY.

						Coal shipped and sold at mines.							
75	15	30	146	340	56	98, 714. 19 38, 436 09	..	....	..	...	...	...	64
52	12	20	113	197	60	53, 260. 06	...	...	.	...	...	..	65
....	..	....	....	151	43	78, 555 10	...	..	..	...	...	...	66
						268 997. 04	Total for Diamond mines.						
80	11	28	146	414	79	167, 857. 07	...	...	...	...	...	..	67
...	.	.	.	137	36	89. 393. 13	...	..	..	....	....	...	68
95	11	36	171	282	33	82, 884. 12	...	...	...	....	.....	..	69
54	8	28	109	272	26	88. 769. 16	...	..	...	....	....	...	70
39	4	22	84	308	53	157, 893. 05	...	..	...	....	....	...	71
22	3	24	59	139	32	12, 923 13	...	...	...	....	.....	...	72
80	8	34	143	403	73	149 786. 12	.	..	..	....	....	...	73
66	8	22	116	326	65	136 514. 18	...	..	..	....	.....	.	74
60	3	25	104	371	51	156, 083. 18	...	..	...	....	.....	...	75
60	7	38	122	415	61	169, 978. 06	...	...	...	....	.....	...	76
60	7	25	111	302	33	125, 079. 02	...	...	...	....	.....	...	77
43	4	23	83	282	42	109, 407. 03	...	...	.	..	.....	...	78
80	5	26	126	317	40	49 175 01	...	...	..	....	.....	..	79
54	6	27	101	359	53	143, 473. 19	...	....	...	....	....	..	80
63	10	26	116	369	60	185, 016. 02	...	...	...	....	.....	..	81
50	5	27	99	377	42	95, 725. 00	..	...	...	....	.....	...	82
...	.	.	*136	187	..	.....	...	.	...	....	.....	..	83
...	.. office	men,	11	27	..	.....	...	...	..	....	.....	..	84
1, 033	127	473	2, 096	5, 975	938	2, 188, 938 11							

*Mechanics. 22; carpenters. 57; masons, 45; weighmasters, 12; total employed outside, 136.

TABLE No. 4—

DELAWARE AND HUDSON

NAME OF COLLIERIES.	NUMBER OF PERSONS EMPLOYED INSIDE.							NO OF		
	Bosses	Miners.	Laborers.	Drivers and runners.	Door-boys.	All company men.	Total inside.	Bosses.	Mechanics.	Head and plate men.
85. Racket Brook,								1	2	7
86. Coal Brook,	2	152	56	54	14	25	303	1	9	6
87. No. 1 Shaft,	1	143	9	40	10	16	219	1	6	9
88. No. 3 Shaft,	1	40	12	14	4	10	81	1	6	5
89. Powderly Slope,	1	96	8	20	4	12	141	1	6	9
90. Jermyn, No. 1,	1	96	36	32	10	14	189	1	7	8
91. Jermyn, No. 2,	1	60	26	22	4	9	122	1	3	7
92. White Oak,	1	96	68	40	8	14	227	1	8	8
93. Grassy Island,	1	126	15	36	6	18	202	1	6	10
94. Olyphant, No. 2,	1	70	41	27	6	16	161	1	6	9
95 Eddy Creek,	1	75	48	27	6	16	173	1	7	9
96. Marvine,	1	101	87	57	14	35	295	1	14	10
97. Leggett's Creek,	1	100	79	70	14	40	304	1	17	10
98. Von Storch,	2	136	130	90	21	70	449	1	24	16
99. Jermyn, No. 3,										
Total,	15	1,291	615	529	121	295	2,866	14	121	123

RECAPITU

100. Miscellaneous coal companies,	48	2,126	1,492	912	255	593	5 426	47	202	214
101. Pennsylvania Coal Company,	24	1,019	851	324	93	220	2,531	24	134	162
102. Delaware, Lackawanna and Western Railroad Company,	20	1 410	1 275	594	133	447	3. 879	16	290	146
103. Delaware and Hudson Canal Company,	15	1,291	615	529	121	295	2, 866	14	121	123
104. Local coal sale mines,		75	43			20	138			
Totals.	107	5.921	4 276	2 359	602	1,575	14 840	101	747	645
Add 6 per cent. for home consumption, steam power, furnaces at mines, &c., &c.,										
Total,										

Continued.

CANAL COMPANY.

Persons Employed Outside.				Total Inside and out.	Number of horses and mules.	Number of tons of coal mined in 1882.	Number of days worked in 1882	Number of persons killed.	Number of persons injured.	Tons of coal mined per life lost	Tons of coal mined for each person injured.	Tons of coal mined for each employee.	No of collieries.
Slate-pi ker.	Drivers and runners.	All company men.	Total outside.										
33	6	13	62	62	3	191,586 08	247 1/2	. . .	. . .	. . .	. . .	. . . .	85
67	16	50	149	452	55	191.620 15	245 3/4	. . .	. . .	.	. . .	. . . .	86
4	4	10	34	252	27	27.608.11	245 1/2	. . .	.	. . .	. .	. . .	87
2	.	14	28	109	10	7,026.11	245 1/3	. . .	. . .	. . .	. . .	. .	88
3	2	14	35	176	13	22,359.01	188	. . .	. . .	. . . .	. . .	. . . .	89
34	4	33	87	276	28	117.139 11	238 1/4	. . .	.	. . . .	. . .	. . .	90
6	4	13	34	156	21	90,900 04	244		.	.	. .	. . . .	91
53	10	23	103	330	32	135 500 00	244 3/4	. .	. .	. . . .	. . . .	. . .	92
44	6	26	93	295	44	119 210 08	246	.	. .	.	. . . .	. . . .	93
43	4	20	86	247	14	70 530.01	245 1/4	. . .	.	. . .	. .	. . . .	94
60		18	95	268	23	65, 351.01	213	. .	. .	. . .	. . .	. . . .	95
41	3	24	93	388	52	172.538 03	238 3/4	. .	.	.	.	. . .	96
63	5	26	128	432	47	163,434.00	239 3/4	.	. .	. .	. .	. .	97
42	7	36	126	575	58	250 267 04	242 3/4	. . .	.	. .	. .	. . . .	98
			. . .		23	112,241.00	122 1/4			.	. .	.	99
504	71	320	1 153	4,019	450	1,737,313							

LATION.

1,261	150	682	2.556	7.980	. .	2 886.975	. . . .	. .	. .	. . . .	. . .	. . . .	100
427	104	264	1,115	3 643	472	1 490,418	. . . .	.	.	. .	. .	. . . .	101
1 033	127	473	2 085	5,975	938	2,188 938	. . . .	. .	.	. . .	. . . .	. .	102
504	71	320	1,153	4.019	450	1 737 313	. . .	. .	. . .	. .	. . .	. . . .	103
		35	35	173	. .	41,460	. .	. .		. .	. . .		104
3 225	452	1 774	6,944	21,784	. .	8,345 044							
. . . . .						500 702							
. . . . .						8 845,746							

TABLE No. 5.—*Giving the names and locality of Collieries, also names of land Luzerne and Carbon counties, now including all of Lackawanna, and a portion of Wyoming December 31, A. D. 1883.*

MISCELLANEOUS

NAME OF COAL MINE OR COLLIERY.	Where located.	By whom Operated.
1. Everhart Slope,	Jenkins township,	Allen & Poole,
2. Eagle Shaft,	Jenkins "	Northern Coal Company,
3. Tompkins Shaft,	Pittston "	Alva Tompkins,
4. Fairmount Shaft,	" "	A. Morris & Co.,
5. Beaver Slope,	" borough,	Waterman & Beaver,
6. Twin Shaft,	" "	Pittston Coal Company,
7. Butler Shaft and Slope,	" township,	Butler Coal Company,
8. Heidelberg Shaft,	" "	Lehigh Valley Coal Company,
9. Florence Shaft,	" "	Florence Coal Company,
10. Mosier Shaft,	Hughestown borough,	Butler Coal Company,
11. Phœnix Shaft,	Marcy township,	Phœnix Coal Company,
12. Columbia Tunnel,	" "	Grove Brothers,
13. Stetler Shaft,	" "	S. N. Stetler & Co.,
14. Hillside Shaft,	Pleasant Valley borough,	Hillside Coal and Iron Company,
15. Spring Brook,	Lackawanna township,	" " "
16. Dunn Shaft and Slope,	Old Forge "	Penn'a Anthracite Coal Co.,
17. Sibley Shaft,	" "	" " "
18. Greenwood Shaft, Slope, & Tunnel	Lackawanna "	" " "
19. National Shaft and Slope and Meadow Brook Tunnel,	20th ward, city of Scranton,	William Connell & Co.,
20. Meadow Brook Shaft,	20th " "	" "
21. Bridge Slope,	14th " "	Bridge Coal Company,
22. Mount Pleasant Slope,	14th " "	William T. Smith,
23. Capouse Shaft,	21st " "	Lackawanna Iron and Coal Co.,
24. Pine Brook Shaft,	7th " "	" " "
25. Fair Lawn Slope,	7th " "	Fair Lawn Coal Company,
26. Green Ridge Slope,	Dunmore borough,	O. S. Johnson & Co.,
27. Lucas Shaft,	2d ward, city of Scranton,	Lucas Coal Company, limited,
28. Elk Hill Tunnel,	Dickson City borough,	Elk Hill Coal and Iron Company,
29. Pancoast Shaft and Slope,	" " "	Pancoast Coal Company,
30. Jermyn, No. 4, Shaft,	" " "	John Jermyn,
31. Lackawanna Coal Co. Shaft,	Blakeley "	Lackawanna Coal Company,
32. Filer's Shaft,	Winton "	Grassy Island "
33. Filer's Slope,	" "	Watkins & Williams,
34. Pierce Coal Company Tunnel,	Archibald "	Jones, Simpson & Co.,
35. Eaton Shaft, Slope, and Tunnel,	" "	" " "
36. Erie Shaft,	Greenwood "	Hillside Coal and Iron Company,
37. Keystone Tunnel,	" "	" " "
38. Forest City Shaft and Tunnel,	Clifford twp., Susquehanna co.,	" " "
39. Belmont Drifts,	Carbondale City,	Divinny & Conran,

PENNSYLVANIA

40. No. 8 Breaker,	Shaft No. 1,	Hughestown borough,	Pennsylvania Coal Company,
	Shaft No. 8,	" "	" "
	Slope No. 6,	" "	" "
41. Shaft No. 4,	14-foot vein,	Pittston "	" "
	Marcy vein,		
42. No. 6 Breaker,	Shaft No. 5,	Jenkins township,	" "
	Shaft No. 6,	" "	" "
	Shaft No. 11,	" "	" "
43. Shaft No. 7,		" "	" "
44. No. 10 Breaker,	Shaft No. 9,	Pittston borough,	" "
	Shaft No. 13, 7-foot vein,	Hughestown "	" "
	Shaft No. 10, 14-foot vein,	" "	" "
	Shaft No. 10, Marcy,	" "	" "
45. Central Breaker	Shaft No. 13,	Old Forge township,	" "
	Shaft No. 12,	Pleasant Valley borough,	" "
	Law Shaft,	Pittston township,	" "
46. Slope No. 2,		Jenkins "	" "
47. Slope No. 4,		" "	" "
48. Tunnel No 1,		Pittston "	" "
49. Stark Shaft and Breaker,		Lackawanna township,	" "

owners, operators, and officers in the Eastern District of the Wyoming Coal Fields, tion of Wayne and Susquehanna counties, State of Pennsylvania, for the year end-

COAL COMPANIES.

Name of General Mine Superintendents and Assistants.	Name of Mining Boss.	Name of Outside Foreman.	Number.
John S. Thompson,	James Thompson,	John S. Thompson,	1
John M. Robertson,	Charles Arkman,	W. S. Frisbie,	2
David W. Evans,	David W. Evans,	W. S. Tompkins,	3
A. Morris,	J. Abbott,	George R. Smith,	4
Daniel Edwards,	Frederick Burkert,	John J. Powell,	5
F. C. Dininny,	Thomas Watkins,	G. H. Tench,	6
" "	James O'Neil,	F. E. Reed,	7
Fred Mercer,	A. Reese, Henry Chapman, ast.,	A. G. Mason, J. W. McCabe, ast.,	8
Austin Moore,	Robert Anderson,	George Kacufer,	9
F. C. Dinniny,	William O'Neil,	Jesse Weaver,	10
R. T. Bliss,	Thomas Smiles,	R. T. Bliss,	11
Evan J. Evans,	Evan J. Evans,	W. G. Evans,	12
S. N. Stetler,	John O'Hara,	T. R. Rease,	13
W. A. May,	M. M. Walsh,	W. B. Williams,	14
" "	J. D. Davis,	J. D. Caryl,	15
Thomas Phillips,	Samuel Baker,	Joseph J. Curt,	16
" "	W. F. Courtwright,	James J. Coyne,	17
" "	T. W. Phillips & Martin Ryan,	M. L. Coyne,	18
William Connell,	Thomas L. Jones, / Samuel T. Jones,	Robert Penuman,	19
" "	" "	Patrick Judge,	20
A. B. Stevens,	J. H. Powell,	D. P. Brooks,	21
William T. Smith,	James R. James,	Thomas D. Bevan,	22
Reese G. Brooks,	John Loveriug,	Walter F. Hussey,	23
" "	Reese R. Griffiths,	Henry Hess,	24
Daniel Bradley,	Daniel Bradley,	Daniel Sourwine,	25
O. S. Johnson,	Richard D. Roberts,	W. S. Boyd,	26
	Thomas Flyn,	M. F. Dolphin,	27
William H. Richmond,	Patrick Riley,	George Weiland,	28
George Griffin,	P. H. Bohner,	Richard Williamson,	29
J. J. Jermyn,	Joseph Davis,	John Biglin,	30
O. S. Johnson,	Richard D. Roberts,	William Harper,	31
C. D. Simpson,	Michael Grimes,	David E. Stearns,	32
D. W. Williams,	D. W. Williams,	—— Watkins,	33
Edward Jones,	John Probst,	Eugene Taylor,	34
" "	James Eaton,	John W. Eaton,	35
W. A. May,	Peter McElhanny,	William Walker,	36
" "	John Grady, assistant,	" "	37
" "	Benjamin Maxey,	A. L. Read,	38
F. C. Dininny,	Daniel Davis,	Paul Burton,	39

COAL COMPANY.

Andrew Bryden,	Alexander Thompson,	Dathan Morse, / Hugh Ferguson,	40
" "	Phillip McCabe,	James Delaney,	41
William Law,	Benjamin Harding,	Loftus Campbell,	
" "	William Reynolds,	Thomas McMillan,	42
Andrew Bryden,	Benjamin Harding,	Loftus Campbell,	
William Law,	William Reid,	John Porteous,	43
Andrew Bryden,	Adam Harkness,	Cuthbert Snowden,	
" "	William Abbott,	" "	44
" "	" "	" "	
" "	John M. Lewis,	Henry Searles,	
William Law,	Thomas Weir,	Thomas M. Martin,	
" "	Robert McMillan,	G. M. Snyder,	45
" "	John Allen,	" "	
" "	Henry Jopling,	John Glenn,	46
Andrew Bryden,	James Watson,	Samuel McDowall,	47
William Law,	Samuel Bennett,	Thomas Hastie,	48
" "	Alexander Laird,	Richard Howard,	49

TABLE No. 5.—

PENNSYLVANIA COAL

NAME OF COAL MINE OR COLLIERY.	Where located.	By whom Operated.
50. Barnum Breaker, (Shaft No. 1, 7-foot vein, . Shaft No. 1, 14-foot vein, . Shaft No. 2, 7-foot vein, . Shaft No. 2, 14-foot vein, .)	Marcy township, ...	Pennsylvania Coal Company, . .
51. New Shaft, Lackawanna, ...	Old Forge township, ...	" " . .
52. Carbon Hill, ...	" "	" " . .
53. New Shaft, Cooper Farm, ...	Jenkins "	" " . .
54. Eagle Shaft, ...	" " . . .	" " . .
55. No. 2 Breaker, ...	Pittston "	" " .
56. Shaft No. 2, ...	Dunmore borough, ...	" " . .
57. Shaft No. 3, ...	" "	" " . .
58. Shaft No. 4, ...	" "	" " . .

DELAWARE, LACKAWANNA AND

59. Diamond, No. 1, Breaker, . . .	21st ward, city of Scranton, .	Del. Lack. and Western R. R. Co.
60. Diamond, No. 2, Breaker, . . .	" " " .	" " "
61. Hampton, ...	Lackawanna township, . . .	" " "
62. Bellevue Shaft, ...	" " . . .	" " "
63. Bellevue Slope, ...	" " . . .	" " "
64. Scranton Mines, ...	" " . . .	" " "
65. Continental, ...	" " . . .	" " "
66. Oxford, ...	5th ward, City of Scranton, .	" " "
67. Taylor, ...	Lackawanna township, . . .	" " "
68. Dodge, ...	" " . .	" " "
69. Hyde Park, ...	5th ward, city of Scranton, .	" " "
70. Central, ...	15th " " " .	" " "
71. Archbald, ...	Lackawanna township, . . .	" " "
72. Cayuga, ...	3d ward, city of Scranton, .	" " "
73. Sloan, ...	Lackawanna township, . .	" " "
74. Brisbin, ...	21st ward, city of Scranton,	" " "
75. Pyne, ...	Lackawanna township, . . .	" " "
76. Stowe, ...	Dickson borough, ...	" " "
77. Jermyn No. 3, ...	13th ward, city of Scranton, .	D. L. & W. and D. & H. C. C., ½ each,

DELAWARE AND HUDSON

78. Racket Brook, ...	Carbondale township, . . .	Delaware and Hudson Canal Co.,
79. Coal Brook, ...	" City, ...	" " "
80. No. 1 Shaft, ...	" "	" " "
81. No. 3 Shaft, ...	" "	" " "
82. Powderly Slope, ...	" township, . . .	" " "
83. Jermyn, No. 1, ...	Jermyn borough, ...	" " "
84. Jermyn, No. 2, ...	" "	" " "
85. White Oak, ...	Archbald "	" " "
86. Grassy Island, ...	Olyphant "	" " "
87. Olyphant No. 2, ...	" "	" " "
88. Eddy Creek, ...	" "	" " "
89. Marvine, ...	Scranton city, ...	" " "
90. Leggett's Creek, ...	" "	" " "
91. Von Storch, ...	" "	" " "
92. Jermyn, No. 3, ...	" "	" " "

Continued.

COMPANY.—*Continued.*

Name of General Mine Superintendents and Assistants.	Name of Mining Boss.	Name of Outside Foreman.	Number.
Andrew Bryden,	Henry McMillan,	Anthony Horan,	50
	James A. Bryden,	William Anderson,	
William Law,	Robert Vivian,	Robert Vivian,	51
" "			52
" "	Robert Vivian,	Robert Vivian,	53
" "	Charles Aitman,	Edward Oxenrider,	54
		John Welsh,	55
James Young,	John Moffatt,	John W. Marshall,	56
" "	P. H. O'Hora,	James Masters,	57
" "	" "	" "	58

WESTERN RAILROAD COMPANY.

W. R. Storrs, general coal agent,	Rees T. Evans,	Daniel Langstaff,	59
B. Hughes, inside general sup't,	Thomas Eynon,		
Wm. A. Stowe, outside "	Daniel Phillips,	" "	60
T. D. Davis, ast. inside "	Joseph D. Lloyd,		
	Thomas Carson,	B. C. Green,	61
	John Hale,	John M. Aiken,	62
	James A. Evans,	" "	63
	H. P. Davies,	John H. Hoffman,	64
	William Douse,	James F. Green,	65
	James Evans,	William Langstaff,	66
	Morgan Harris,	J. P. Cooper,	67
	Edward James,	E. E. Thomas,	68
	David W. Moser,	Robert Ruthvan,	69
	Lewis Roberts,	John A. Mears,	70
	John W. Davis, ast. foreman,		
	Elijah Dagger,	John Fern,	71
	Thomas Watkins,	G. S. Decker,	72
	John T. Williams,	John Rus,	73
	Frank Zimmerman,	D. E. Bell,	74
	John L. Lewis,	Adam Rheinhart,	75
	William D. Rees,	John A. Mears,	76
	John Van Bergen,	J. L. Atherton,	77

CANAL COMPANY.

A. H. Vandling, gen. sup't coal dep't	William McMyne,	William P. E. Morris,	78
J. M. Chittenden, assistant,	Patrick McCabe,	William Bowers,	79
Andrew Nicol, general mine sup't,	John Waterfield,	Thomas Birket,	80
	John Hughes,	Thomas Cogan,	81
	Andrew P. Patton,	Robert Carter,	82
A. B. Nicol, assistant,	Joseph Tennis,	T. C. Griffin,	83
	I. I. Kearney,	Thomas Hunter,	84
	James Nicol,	Thomas Law,	85
	Andrew Patten, James Vessle,	J. G. Bell,	86
	Richard Mason,	William Bell,	87
	J. W. Jones,	S. S. Gritman,	88
	Joseph V. Birtley,	B. B. Atherton,	89
	Finlay Ross,	George W. Wilder,	90
	E. D. Jones, Martin Loftus,	Charles W. Ziegler,	91
	John Van Berger,	J. L. Atherton,	92

TABLE No. 6.—*Showing the condition of ventilation in all the collieries in the East Lackawanna and a portion of Wayne and Susquehanna counties,*

Number.	Name of Collieries.	Local name, number, or letter of each split of air.	Mode of ventilation.	Dimen. of Fan. Diameter in feet.	Dimen. of Fan. Width of face in ft.	Revol'n of fan per minute.	Dimensions of area of furnace grate.
1	Evarhart Slope,	Dip gangway,	Natural,				
2	Eagle Shaft,	No. 1 heading,	Fan,	18	4	60	
3	Do.	No. 2 heading,	"				
4	Do.	14-foot seam,	"				
5	Do,	Old workings,	"				
6	Tompkins Shaft,	Top and bottom,	"	6	2½	150	
7	Do.	Keddy side,	"				
8	Do.	Dip side,	"				
9	Fairmount Shaft,	Shaft intake,	"	12	3⅔	60	
10	Do,	Tunnel intake,	"				
11	Do.	Shaft gangway,	"				
12	Do.	Tunnel gangway,	"				
13	Twin Shaft,	No. 1 split,	"	14	5	75	
14	Do.	No. 2 split,	"				
15	Beaver Slope,		Natural,				
16	Butler Shaft,		"				
17	Heidelberg Shaft,	Marcy vein, east,	Fan,	20	6	40	
18	Do.	Marcy vein, west,	"				
19	Do.	Bottom vein,	"				
20	Moser Shaft,	No. 1 split,	"	14	4	70	
21	Do.	No. 2 split,	"				
22	Phœnix Shaft,	No. 1 split,	"				
23	Do.	No. 2 split,	"				
24	Columbia Tunnel,		Furnace,				20
25	Stetler Shaft,	South gangway,	Fan,	12	3½	100	
26	Do.	Campbell's ga'way,	"				
27	Do.	Bowen's gangway,	"				
28	Do.	Price & Williams' gangway,	"				
29	Do.	North gangway,	"				
30	Florence Shaft,		"	14	4	50	
31	Do.	Face of east head'g,	"				
32	Do.	Face of west head'g	"				
33	Hillside Shaft,	North-east heading,	"	14	4	84	
34	Do.	South-east heading,					
35	Spring Brook,	O'Holleran's head g	Fan,	12	4	60	
36	Do.	New Slope heading,	"				
37	Water Level at Breaker,		Air-shaft with steam,				
38	Dunn Shaft,		Natural,				
39	Sibley (anthracite) Colliery,	Top vein,	Fan,	15	4	90	
40	Do. do.	Bottom vein,					
41	Greenwood Mines,	Shaft, east side,	Fan,	14	4	100	
42	Do.	Shaft, west side,					
43	Do.	Drift No. 11,	Furnace,				5¼x7½
44	Do.	Drift Nos. 4 and 5,	Natural,				
45	Do.	Slope and tunnel,	Furnaces,				82
46	National Shaft and Slope,	Gangway east,	Fan,	14	3½	100	
47	Do. do.	Gangway west,	"				
48	Meadow Brook Tunnel,	Counter gangway,	Furnace,				8x8
49	Do. do.	Lower gangway,	"				6x6
50	Meadow Brook Shaft,	Two lower ga'ways east,	Fan,	14	3½	100	
51	Do.	Main gangway and counter,					
52	Do.	Counters at head of plane,					
53	Do.	West side from s'ft,					
54	Bridge Slope,	G vein,	Fan,	14	3½	75	
55	Do.	Rock vein, No. 1 split,	"				
56	Do.	Rock vein, No. 2 split,	"				
57	Mount Pleasant Slope,	Entrance at fault,	"	14	4	80	
58	Do.	New bridge,	"				
59	Do.	John Daw's head'g,	"				
60	Do.	Rock vein,	"				

ern (or Scranton) District of Luzerne and Carbon counties, now including all of Pennsylvania, for year ending 31st day of December, A. D. 1883.

Amount of Ventilation per Minute.			Condition of ventilation.	Height of heated columns of air.	No. of persons working in each split.	Dimen. or area of intake in ft.	Dimensions or area of out or upcast in feet.	Velocity of air at intake.	Dimensions or area of place where air was measured.	Velocity of air at face of workings.	Dimensions or area of place where air was measured.	Velocity of air at out or upcast.	Dimensions or area of place where air was measured.	Number.
At intake.	At face of workings.	At outlet or upcast.												
19,206	9,603	19,303	Fair,	. .	54	96	90	200	8x12	145	8x8	220	90	1
51,000	9,050	. . . . .	Good	. .	. .	192	60	265	. . .	. . .	. . .	. . .	. . .	2
. . . . .	8,900	. . . . .	. . .	. .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	3
. . . . .	8,350	. . . . .	. . .	. .	39	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	4
. . . .	10,000	57,000	. . .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	950	60	5
7,540	5,780	. . . . .	Good	. .	15	60	50	274	. .	. . .	. . .	. . .	. . .	6
4,880	3,535	. . . . .	. . .	. .	11	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	7
4,020	3,905	17,400	. . .	. .	13	. . .	. . .	. . .	. . .	. . .	. . .	348	50	8
14,000	. . . . .	. . . . .	. . .	. .	. .	156	. . .	160	48	. . .	. . .	. . .	. . .	9
11,000	. . .	. . .	. . .	. .	. .				108	. . .	. . .	. . .	. . .	10
. . . . .	12,250	. . . . .	. . .	. .	65	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	11
. . . .	9,000	26,000	. . .	. .	45	. . .	. . .	. . .	. . .	. . .	. . .	433	60	12
31,970	22,860	36,780	. . .	. .	40	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	13
34,730	25,000	39,240	. . .	. .	47	180	. . .	370	. . .	. . .	. . .	845	90	14
6,940	2,420	7,480	. . .	. .	17	48	. . .	146	. . .	. . .	. . .	208	36	15
15,980	13,750	16,450	. . .	. .	59	68	. . .	235	. . .	. . .	. . .	206	80	16
20,295	16,200	22,810	. . .	. .	62	360	. . .	156	. . .	. . .	. . .	. . .	. . .	17
17,660	11,900	17,900	. . .	. .	42	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	18
18,315	. . .	19,000	. . .	. .	10	. . .	. . .	. . .	. . .	. . .	. . .	720	144	19
22,050	21,600	22,500	. . .	. .	57	120	. .	245	90	. . .	. . .	. . .	. .	20
21,600	21,150	22,050	. . .	. .	55	. . .	66	240	90	. . .	. . .	675	66	21
30,750	28,640	34,270	. . .	. .	66	. . .	. .	. . .	. . .	. . .	. . .	. . .	. .	22
16,400	15,270	21,000	. . .	. .	18	100	. .	472	. . .	. . .	. . .	. . .	. .	23
4,190	3,961	4,037	. . .	. .	14	42	36	100	. . .	. . .	. . .	112	36	24
42,300	21,300	. . . . .	. . .	. .	48	. . .	. . .	. . .	. . .	217	7x14	. . .	. .	25
20,100	19,050	. . . . .	. . .	. .	50	144	. . .	552	144	212	14x6½	. . .	. . .	26
. . . . .	20,100	. . . . .	. . .	. .	45	. . .	. . .	. . .	. . .	273	7x10½	. . .	. . .	27
. . . . .	15,400	. . . . .	. . .	. .	44	. . .	. . .	. . .	. . .	169	7x13	. . .	. .	28
17,025	16,300	89,300	. . .	. .	42	. . .	. .	. . .	. .	233	5x14	1,050	85	29
35,600	. . .	. . . . .	. . .	. .	. .	200	. . .	178	200	. . .	. . .	. . .	. . .	30
. . . . .	12,750	. . . . .	. . .	. .	30	. . .	. . .	. .	. .	. . .	. . .	. . .	. .	31
. . . .	9,600	39,000	. . .	. .	23	. . .	. . .	. . .	. . .	. . .	. . .	325	120	32
19,270	16,880	22,240	. . .	. .	129	220	100	128	6x25	282	7x10	278	8x10	33
16,640		19,750	. .	. .	63			277	6x10			282	7x10	34
8,200	6,100	33,900	. .	. .	18	. . .	. . .	. . .	. .	. . .	. .	. . .	. . .	35
21,600	16,400			. .	96	84	66	Not	meas	ured	since	July,	1883	36
16,800	4,200	17,900	. . .	70	53	48	36	466	36	87	48	500	36	37
20,800	5,760	20,940	. . .	. .	. .	260	. .	.	80	260	. . .	214	98	38
30,700	4,500	11,600	Good	. .	35	250	70	123	250	. .	. . .	. . .	. . .	39
21,400	9,870	23,140	. . .	. .	60	. . .	. . .	. . .	. . .	. . .	. . .	496	70	40
51,300	22,685	. . . . .	. . .	. .	. .	200	. . .	.	.	. . .	. .	.	. . .	41
. . .	20,186	51,793	Good	. .	56	.	80	256	200	. . .	. . .	647	80	42
10,800	7,740	11,250	"	39	72	42	64	257	42	. . .	. . .	175	64	43
14,585	Tak'g out	pillars.	. . .		20	.	. . .		. .	. .	. .	. .	. . .	44
22,700	15,860	18,984	Good	50	114	48	80	473	48	440	36	237	80	45
36,270	18,720	27,360	"	. .	30	6½x18	72	310	117	234	5x16	380	72	46
	17,520	9,450	"	. .	50		70			219	5x16	135	70	47
18,000	16,440	19,800	"	60	48	48	36	375	48	274	10x6	550	72	48
18,720	16,860	19,620	"	80	53	72	36	260	72	281	10x6	545	72	49
34,650	16,800	71,750	"	. .	50	. . .	. . .	.	. . .	210	5x16	. . .	. . .	50
	15,050		"	. .	50	63	. .	550	63	215	5x14	. . .	. . .	51
26,040	23,670		"	. .	80	168	. .	155	168	263	6x15		.	52
9,800	9,450		"	. .	27	70	54	140	60	135	7x10	1,025	70	53
33,300	26,735	34,200	"	. .	48	77	98	433	77	425	63	. . .	. . .	54
32,945	27,160	33,155	"	. .	62	50	50	1,042	50	460	59	. .	. . .	55
19,170	18,895	19,885	"	. .	25					328	56	745	117	56
43,000	14,200	. . . .	"	. .	49	105	. . .	409	105	236	60	. .	. . .	57
. . . .	10,000	. . . . .	"	. .	48	. . .	. . .	. . .	. . .	208	48	. . .	. . .	58
. . . . .	9,800	. . . . .	"	. .	52	. . .	. . .	. . .	. . .	200	49	. . .	. .	59
. . . . .	11,000	43,870	"	. .	50	. . .	70	. . .	. . .	200	55	627	70	60

TABLE No. 6—

Number.	Name of Collieries.	Local name, number, or letter of each split of air.	Mode of ventilation.	Dimen. of Fan. Diameter in feet.	Dimen. of Fan. Width of face in ft.	Revol'n of fan per minute.	Dimensions or area of furnace grate.
61	Capouse Mines, (shafts,)	Gangway C,	Fan,	9½	2½	110	
62	Do.	Gangway E,	"	20	4	70	
63	Do.	Gangway G,	"				
64	Do.	Gangway H,	"				
65	Do.	Gangway I,	"				
66	Do.	Gangway K,	"				
67	Pine Brook Shaft,	Gangway A,	Double fan,	17½	40	62	
68	Do.	Gangway B,	"				
69	Do.	Clark vein—old workings,					
70	Fair Lawn Slope,	Clark vein,	Fan,	12	3	100	
71	Do.	Lower vein,					
72	Green Ridge Slope,	Dunmore vein, No. 1 heading,	Fan,	12	3	120	
73	Do.	Dunmore vein, No. 2 heading,					
74	Do.	Dunmore vein, No. 3 heading.					
75	Do.	No. 2 vein, south heading,					
76	Lucas Shaft,	No. 1 split,	Fan,	12	32	100	
77	Do.	No. 2 split,					
78	Pancoast Mines,	Split No. 1,	Fan,	16	4	70	
79	Do.	Split No. 2,	"				
80	Jermyn, No. 4. Mines,	West heading,	"	20	5	70	
81	Do.	West heading, No. 2,	"				
82	Do.	East heading.	"				
83	Lackawanna Coal Co. Mines,	North heading,	"				
84	Do. do.	South heading,	"			52	
85	Grassy Island C. Co., (new s'ft.,)						
86	Filer's Shaft,	Main current,	Furnace,				8x10
87	Filer's Slope,	North-east heading,	Fan,	14	4½	90	
88	Do.	West heading,	"	14			
89	Pierce Coal Company,	Main current,	"	16	4¾	90	
90	Jones, Simpson & Co.'s Mines,	No. 1 tunnel and slope,	"	15	4	80	
91	Do. do.	New shaft,	Natural,				
92	Do. do.	Drift heading,	"				
93	Erie Shaft,	Plane,	Fan,	18	4	60	
94	Do.	Slope,	"				
95	Do.	Sump,	"				
96	Keystone Mines,		Furnace,				8x10
97	Forest City Shaft,	North heading,	Fan,	16	4	70	
98	Do.	South heading,	"				
99	Belmont Mines,		"	6	3	300	

PENNSYLVANIA

100	Shaft No. 1,	East,	Fan,	17½	5	50	
101		West,					
102	No. 8 Breaker; Shaft No. 8,	East,	Fan,	17½	5	60	
103		West,					
104	Slope No. 6,	East,	Furnace,				5x5
105	14-foot vein,	West,	Natural,				
106	Shaft No. 4, Marcy vein,	East,	Fan,	17	4½	75	
107		West,					
108	Shaft No. 5,	A,	Fan,	17½	5	65	
109		B,					
110		C,					
111	Shaft No. 6,	A,	Fan,	Located at Shaft No. 5			
112	No. 6 Breaker,	B,	Steam,				
113		C,	"				
114	Shaft No. 11,	A,	Fan,	17½	5	60	
115		B,					
116		C,					

Continued.

Amount of Ventilation per Minute.			Condition of ventilation.	Height of heated columns of air.	No. of persons working in each split.	Dimen. or area of intake in ft.	Dimensions or area of out or upcast in feet.	Velocity of air at intake.	Dimensions or area of place where air was measured.	Velocity of air at face of workings.	Dimensions or area of place where air was measured.	Velocity of air at out or upcast.	Dimensions or area of place where air was measured.	Number.
At intake.	At face of workings.	At outlet or upcast.												
29,400	26,940	30,000	Good	. .	50	98	70	300	98	350	77	428	70	61
19,000	17,200	20,000	"	. .	50	. . .	. . .	. .	. . .	224	77	. . .	. . .	62
17,600	16,640	18,840	"	. .	50	. . .	. . .	. . .	. .	231	72	. . .	. . .	63
30,000	29,200	31,500	"	. .	50	98	. . .	1,022	98	374	78	. . .	. .	64
18,230	17,000	19,200	"	. .	50	. . .	. . .	.	. . .	237	72	. .	. . .	65
15,320	14,280	17,800	"	. .	50	. . .	. . .	. .	. . .	157	91	527	205	66
52,800	25,750	53,350	"	. .	33	98	. . .	970	98	286	90	. .	. .	67
42,240	38,160	44,590	"	. .	34	. .	154	. . .	. . .	266	144	636	154	68
. . . .	. . . .	74,760	"	. .	. .	. .	. .	. . .	.	. . .	. . .	. . .	. . .	69
27,540	16,820	32,280	"	. .	75	72	87	382	72	140	120	371	87	70
. . . .	6,300	. . . .	. . .	. .	38	Open	ing	out	this	seam	of	coal.	. . .	71
10,960	8,610	10,960	"	. .	49	84	. . .	671	84	. . .	. . .	. . .	. . .	72
10,900	8,490	10,900	"	. .	48	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. .	73
11,710	8,920	11,710	"	. .	50	. . .	. . .	. . .	. . .	. .	. .	420	80	74
12,010	9,700	12,010	"	.	48	. . .	. . .	. .	. . .	. . .	. . .	.	. . .	75
40,700	38,740	40,780	"	. .	50	80	. . .	508	80	. .	. . .	488	125	76
20,140	16,440	20,280	"	. .	44	220	120	92	220	. .	. .	. .	.	77
15,800	7,600	16,101	"	. .	67	40	112	263	60	127	60	268	60	78
15,280	8,460	16,210	"	. .	67	50	112	254	60	141	60	271	60	79
38,240	33,450	43,620	"	.	46	106	. . .	1,097	106	. . .	. . .	. . .	. .	80
36,680	32,190	45,680	"	. .	48	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.	81
41,410	36,530	44,370	"	. .	64	. .	100	. .	. . .	. . .	. . .	1,337	100	82
33,145	28,460	33,240	"	. .	110	340	. .	. . .	. . .	. . .	. . .	. .	. .	83
34,213	29,010	34,350	"	. .	101	. . .	100	. . .	. . .	. . .	. . .	676	100	84
. . . .	. . . .	. . . .	. . .	. .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. .	. . .	85
25,600	11,580	27,840	Fair,	64	171	65	70	395	65	. . .	. . .	663	42	86
22,300	7,280	22,970	"	. .	87	72	64	310	72	. . .	. . .	. .	. .	87
. .	10,140	. . . .	"	. .	. .	. . .	. . .	. .	. . .	. .	. . .	359	64	88
44,320	27,940	58,280	Good	. .	189	50	64	886	50	333	84	910	64	89
58,700	15,600	59,850	Fair,	. .	127	70	77	978	60	260	60	374	160	90
8,400	5,180	8,460	"	. .	17	140	140	118	72	72	72	118	72	91
16,540	12,280	17,980	"	.	37	72	144	230	72	170	72	118	144	92
	13,903			. .	45	. . .	. .	230	8x14½	403	5⅔x6	. . .	. .	93
59,577	8,505	76,041	"	.	52	216	100	709	8x5⅔	135	7x9	1,491	51	94
	15,051			. .	78	. . .	. .	. .	. . .	173	6x14⅛	. .	. .	95
18,936	14,665	21,380	"	. .	92	72	100	263	72	419	35	605	35.34	96
23,136	5,153	21,060	Good	. .	20	160	100	241	96	134	38½	. . .	. . .	97
. . .	4,557			. .	52	. . .	. .	. . .	.	217	21	405	52	98
16,240	6,820	18,460	"	. .	100	112	64	145	112	162	42	290	64	99

COAL COMPANY.

6,000	5,500	16,890	Good	.	14	60	12	100	60	114	48	657	12	100
9,300	8,100			.	61	72	16	129	72	147	55	562	16	101
13,690	12,167	32,170	"	.	52	75	81	182	75	209	58	397	81	102
18,860	16,973			.	56	65		290	65	282	60			103
8,900	6,800	10,780	"	110	22	48	35	185	48	226	30	308	35	104
13,500	10,020	14,000	"	.	26	75	70	180	75	167	60	200	70	105
13,650	10,075	30,810	"	.	30	95	47½	147	78	155	65	395	78	106
15,120	13,200			.	38			180	84	165	80			107
18,975	13,500	19,950	"	. .	55	75	35	253	75	225	60	570	35	108
10,900	7,400	11,200	"	.	32	50	40	215	50	123	60	280	40	109
6,000	4,725	6,250	"	. .	18	60	50	100	60	105	45	125	50	110
10,800	8,000	42,890	"	.	39	72	35	150	72	200	40	570	35	111
12,000	4,500			.	24	60	77	200	60	150	30	100	77	112
9,600	8,400			377	36	60	108	160	60	140	60	141	108	113
10,400	6,300	10,700	"	. .	6	50	40	208	50	157	40	267	40	114
17,000	12,900	19,900	"	. .	21	60	50	283	60	258	50	398	50	115
10,100	7,000	10,600	"	. .	17	50	60	202	50	100	70	177	60	116

TABLE No. 6—

PENNSYLVANIA COAL

Number.	Name of Collieries.	Local name, number, or letter of each split of air.	*Mode of ventilation.	Dimen. of Fan. Diameter in feet.	Dimen. of Fan. Width of face in ft.	Revol'n of fan per minute.	Dimensions or area of furnace grate.
117	Shaft No. 7,	East,	Fan,	17½	5	84	
118	Do.	West,					
119	Shaft No. 9,	1,	Fan,	17½	5	60	
120		2,					
121		3,					
122		4,					
123	No. 10 Breaker. Shaft No. 10, 7 ft. vein,	1,	Fan,	17½	5	72	
124	" " 10, 14 " "	2,					
125	" " 10, Marcy "	1,					
126	" " 10, " "	2,					
127	" " 10, " "	3,					
128	" " 10, " "	4,					
129	" " 10, " "	5,					
130	Central Breaker. Shaft No. 13,	East,	Fan,	17½	5	60	
131		West,					
132	Shaft No. 12,	East,	Natural,				
133		West,	Fan located at Law Shaft.				
134		1,	Fan,	17½	5	65	
135		2,					
136		3,					
137	Law Shaft,	4,					
138	Slope No. 2,	1,	Steam,				
139	Slope No. 4,	1,	Natural,				
140	Do.	2,					
141	Do.	3,					
142	Do.	4,	Fan located at Shaft No. 11.				
143	Tunnel No. 1,	1,	Steam,				
144	Do.	2,					
145	Stark Shaft and Breaker,	1,	Steam,				
146	Do. do.	2,	Fan located at No. 13 Shaft.				
147	Barnum Breaker. Shaft No. 1, 7 ft. vein,	1,	Fan,	17½	5	50	
148		2,					
149	" " 1, 14 " "	3,					
150		1,	Fan,	17½	5	50	
151	Shaft No. 2, 7 " "	2,					
152		3,					
153	" " 2, 14 " "	4,					
154	New Shaft, Lackawanna,	Sinking.					
155	Carbon Hill,	Not working in 1883.					
156	New Shaft, Cooper Farm,	Sinking.					
157	Eagle Shaft,	There was no mining done in the last 5 mos. of 1883.					
158	Shaft No. 2,	Top vein,	Furnace,				4½x6
159	Do. 2,	Bottom vein,	Natural,				
160	Do. 3,	Top vein,	Fan,	17½	5	70	
161	Do. 3,	Middle vein,	"	17½	5	70	
162	Do. 4,	Bottom vein, S. W. side,	"	17½	5	70	
163	Do. 4,	Bottom vein, N. E. side,	"	17½	5	70	

DELAWARE, LACKAWANNA AND

164	Diamond No. 2 Shaft, G vein,	David Richards,	2 fans,	14	4	100	
165	Do. do. do.	Stephen Evans,	"	14	4	100	
166	Do. do. do.	Morgan Morgans,	"	14	4	100	
167	Do. Tripp Slope, G vein,	John D. Jones,	"	14	4	100	
168	Do. do. do.	David Hughes,	"	14	4	100	

Continued.

COMPANY—*Continued.*

Amount of Ventilation per Minute.			Condition of ventilation.	Height of heated columns of air.	Number of persons working in each split.	Dimension or area of intake in feet.	Dimensions or area of out or upcast in feet.	Velocity of air at intake.	Dimensions or area of place where air was measured.	Velocity of air at face of workings.	Dimensions or area of place where air was measured.	Velocity of air at out or upcast.	Dimensions or area of place where air was measured.	Number.
At intake.	At face of workings.	At outlet or upcast.												
12,620	8,560	41,640	Good	. .	33	96	140	140	90	180	70	297	140	117
22,340	16,480			. .	83			279	80	206	80			118
21,600	17,300			. .	16	36		332	65	173	100			119
21,000	15,840	80,760	"	. .	45	120	60	250	84	220	72	950	85	120
23,865	18,000			. .	45			645	37	150	120			121
10,000	7,000			. .	20	30		200	50	140	50			122
14,340	7,200	18,000	"	. .	20	30	72	356	40	180	40	360	50	123
21,300	12,500	26,100	"	. .	22	100	72	284	75	250	50	580	45	124
10,530	9,270			. .	24			234	45	206	45			125
15,600	13,200			. .	35			520	30	330	40			126
15,120	13,800	76,400	"	. .	36	100	72	432	35	345	40	910	84	127
14,625	13,500			. .	32			325	45	300	45			128
14,200	11,475			. .	28			284	50	255	45			129
17,260	8,400	57,500	"	. .	11	144	72	240	72	140	60	416	138	130
20,000	12,400				43			244	82	206	60			131
9,000	6,000	26,000	"	. .	45	120	140	258	35	100	60	325	80	132
14,000	9,500			. .	52			400	35	160	60			133
16,800	9,770			. .	40	60		280	60	122	80			134
21,150	19,200	66,960	"	. .	38	90	66	235	90	240	80	956	70	135
8,400	5,400			. .	10	60		140	60	180	30			136
11,600	10,200			. .	20	60		186	60	170	60			137
30,350	10,135	33,790	"	377	83	90	87	281	108	169	60	422	80	138
12,950	8,000	11,928	"	. .	30	35	24	370	35	160	50	497	24	139
. . . . .	9,675			. .	29					215	45			140
. . . . .	9,730	15,600	"	. .	32	77	40	240	77	278	35	390	40	141
18,480	8,190	6,400	"	. .	33		20			182	45	320	20	142
14,000	13,600	23,600	"	150	34	32	70	437	32	226	60	336	70	113
8,800	8,200				38	32		280	32	136	60			144
12,340	9,670	12,910	"	113	46	54	70	218	54	138	70	184	70	145
10,697	7,915	11,035	"	. .	49	33	18	324	33	158	50	613	18	146
13,500	13,500	12,040	"	. .	48	90		150	90	150	90	172	70	147
11,200	11,200	40,250	"	. .	44	40	100	280	40	280	40	575	70	148
27,360	23,870			. .	48	72		380	72	310	77			149
17,940	14,625	37,800	"	.	42	78	85	230	78	225	65	450	84	150
17,940	17,940			. .	42	78		230	78	230	78			151
19,440	19,440	39,780	"	. .	45	54		360	54	360	54	510	78	152
10,080	10,080			. .	42	84		120	84	120	84			153
														154
														155
														156
														157
20,496	13,920	20,646	"	150	113	5x6	10x10	244	84	232	60	333	62	158
8,400	5,950	8,400	"	. .	9	10x10	12x12	168	50	119	50	168	50	159
9,600	9,100	10,000	"	. .	18	5x12	10x10	160	60	130	70	100	100	160
15,860	15,500	16,200	"	. .	85	5x12	5x12½	260	60	250	62	270	60	161
20,300	19,800	20,400	"	. .	105	5x12	5x14	290	70	330	60	340	60	162
10,080	9,360	10,800	"	. .	10	6x12	6x12	140	72	130	72	180	60	163

WESTERN RAILROAD COMPANY.

. . . . .	23,695	. . . . .	. . .	. .	53	10x13	10x14	726	60	677	35	. . .	. . .	164
. . . . .	23,267													
. . . . .	34,000	. . . . .	. . .	. .	54	"	"	716	57	439	53	. . .	. . .	165
84,372	81,762	87,024	Good	. .	60	"	"	. . .	. . .	580	60	1,036	84	166
19,080	18,560	. . . . .	"	. .	60	11x7	10x13	318	60	320	58	. . .	. . .	167
14,701	14,460	. . . . .	"	. .	50	"	"	241	61	241	60	532	65	168
33,781	33,020	34,580	"											

TABLE No. 6—

DELAWARE, LACKAWANNA AND

Number.	Name of Collieries.	Local name, number, or letter of each split of air.	Mode of ventilation.	Dimen. of Fan. Diameter in feet.	Dimen. of Fan. Width of face in ft.	Revol'n of fan per minute.	Dimensions or area of furnace grate.
169	Diamond No. 2 Slope, G vein,	Daniel C. Phillips,	2 furnaces,				96
170	Do. do. do.	James Joseph,	2 "				96
171	Hampton Shaft,	Wm. J. Jones,	Fan,	14	4	122	
172	Do. do.	Wm. Hughes,	"	14	4	122	
173	Do. do.	Isaac Griffiths,	"	14	4	122	
174	Do. do.	Rock run,	"	14	4	122	
175	Do. do.	John Griffiths,	"	14	4	122	
176	Bellevue Shaft,	J,	Fan,	14	4	100	
177	Do. do.	A,	"	14	4	100	
178	Do. do.	D,	"	14	4	100	
179	Do. do.	H,	"	14	4	100	
180	Bellevue Slope,	J, H, F,	Fan,	14	4	100	
181	Do. do.	G, E,	"	14	4	100	
182	Do. do.	A,	"	14	4	100	
183	Scranton Coal Mines Slope,	Pump road,	Fan,	14	4	130	
184	Do. do. do.	A,	"	14	4	130	
185	Do. do. do.	B,	"	14	4	130	
186	Do. do. do.	C,	"	14	4	130	
187	Do. do. do.	New county vein,	"	14	4	130	
188	Oxford Shaft, Clark vein,	A & C,	Fan,	14	4	100	
189	Do. do.	B,	"	14	4	100	
190	Continental Shaft,	Charles Coombs,	Fan,	12	3½	123	
191	Do. do.	Wm. J. Hughes,	"				
192	Do. do.	Pat. Hogan,	"				
193	Do. do.	Thos. L. Davies,	"				
194	Do. do.	Thos. E. Williams,	"				
195	Do. do.	Pat. Connor,	"				
196	Taylor Shaft,	J,	2 fans,	14	4	120	
197	Do.	R,	"				
198	Do.	B,	"				
199	Do.	G,	"				
200	Do.	H,	"				
201	Do.	E bottom vein,	"				
202	Do.	West bottom vein,	"				
203	Do.	Little vein,	"				
204	Taylor Drift,	M,	Fan,	12	3½	71	
205	Dodge Shaft,	B,	2 furnaces,				96
206	Do.	C,	2 "				
207	Do.	E,	2 "				
208	Do.	F,	2 "				
209	Do.	R, Y,	2 "				
210	Do.	S,	2 "				

Continued.

WESTERN RAILROAD COMPANY—*Continued.*

Amount of Ventilation per Minute.			Condition of ventilation.	Height of heated columns of air.	Number of persons working in each split.	Dimensions or area of intake in feet.	Dimensions or area of out or upcast in feet.	Velocity of air at intake.	Dimensions or area of place where air was measured.	Velocity of air at face of workings.	Dimensions or area of place where air was measured.	Velocity of air at out or upcast.	Dimensions or area of place where air was measured	Number.
At intake.	At face of workings.	At outlet or upcast.												
49,500	20,808	. .	Good	. .	30	21x7	12x12	750	66	289	72	.	. . .	169
. .	28,434	49,875	"	.	10	. . .	. . .	. . .	. .	677	42	375	133	170
. . . .	13,750	. . . . .	"	. .	66	9x17	6x10	. . .	. . .	250	55	. .	. . .	171
. . . . .	14,256	. .	"	. .	65	. . .	.	. . .	. .	216	66	. . .	. . .	172
54,096	8,514	. . .	"	. .	38	. . .	. .	.	.	129	66	.	. .	173
11,899	12,342	67,032	"	. .	32	. .	. . .	207	57	187	66	798	84	174
11,385	7,095	20,930	"	. .	14	. . .	. . .	207	55	129	85	299	70	175
77,380	55,957	87,962	"	. .	. .	. . .	. . .	483	112					
. . . .	21,216	. . . . .	"	. .	46	10x18	10x10	.	.	272	78	. . .	. . .	176
40,320	18,776	. . . . .	"	. .	17	. . .	"	448	90	286	66	. . .	. . .	177
37,908	15,600	. . . . .	"	. .	35	. .	"	486	78	260	60	.	.	178
. . .	15,192	. . . .	"	. .	29	. .	"	. . .	. .	211	72	1,113	85	179
78,228	70,784	94,605	"	. .	. .	. . .	"							
. . . .	16,960	. . . . .	"	. .	47	7x13	"	. . .	. . .	212	80	. .	. . .	180
. . . . .	16,800	. . . . .	"	. .	37	"	"	. . .	. .	300	56	. . .	. . .	181
. . . . .	12,810	. . . . .	"	. .	27	"	"	. . .	. . .	183	70	. . .	. . .	182
40,400	46,570	47,916	"	. .	. .	. . .	. . .	505	80	. . .	. . .	726	66	
12,432	8,580	. . . . .	"	. .	. .	7x14	12x12	148	84	265	34	. . .	. . .	183
9,648	26,845	. .	"	. .	46	. . .	. .	134	72	130	66	. . .	. . .	184
67,452	19,844	. . . . .	"	. .	44	. .	. . .	803	84	295	91	. . .	. . .	185
. . . . .	14,877	. . . . .	"	. .	46	. . .	. . .	. . .	. . .	484	41	. . .	. . .	186
. . . . .	9,010	. . . . .	"	. .	. .	. . .	. . .	. . .	. .	551	27	. . .	. . .	187
89,532	79,156	92,820	"	.	. .	. . .	. .	. . .	. . .	. . .	. . .	884	105	
. . . . .	39,655	. . . . .	"	. .	38	10x14	10x7	645	112	515	77	. . .	. . .	188
. . . . .	33,600	. . . .	"	.	31	. . .	. .	. . .	. . .	480	70	. . .	. . .	189
72,240	73,255	74,970	"	. .	. .	. . .	. . .	. . .	. . .	.	. .	765	98	
. . . . .	19,734	. . . . .	"	. .	42	10x21	13 ft. o	. . .	. . .	299	66	. . .	. . .	190
. . . . .	19,180	. . . . .	"	. .	28	"	"	. . .	. . .	274	70	. . .	. . .	191
. . . . .	20,244	. . . . .	"	. .	40	"	"	. . .	. .	241	84	. . .	. . .	192
. . . . .	18,780	. . . .	"	. .	36	"	"	. . .	. .	313	60	. . .	. . .	193
44,800	16,562	. . . . .	"	.	20	"	"	560	80	338	49	.	. . .	194
57,820	12,240	. . . . .	"	. .	18	. . .	. . .	590	98	255	48	. . .	. . .	195
102,620	106,740	114,569	"	. .	. .	. .	.	. . .	. . .	. . .	. . .	1,259	91	
22,880	23,040	. . . . .	"	. .	48	10x18	10x16	260	88	240	96	. .	. . .	196
24,960	21,120	. . . . .	"	. .	33	"	"	260	96	220	96	. . .	. . .	197
27,000	24,960	. . . . .	"	. .	44	"	"	600	45	260	96	. . .	. . .	198
25,440	22,000	. . . .	"	. .	38	"	"	265	96	250	88	.	.	199
16,320	16,150	156,400	"	. .	24	"	"	170	96	190	85	1,700	92	200
		3,600	"	. .	.	"	"	. . .	. .	. .	. . .	120	30	201
116,500	107,270	8,000	"	.	. .	"	"	. . .	. .	. .	. . .	100	80	202
. . . . .	. . . . .	1,500	"	. .	. .	"	"	. . .	. . .	. . .	. . .	100	15	203
		169,500												
29,700	28,900	38,500	"	. .	43	12x12	10x12	550	54	340	85	1,100	35	204
38,152	16,536	. . . . .	"	294	30	10x21	13x13	502	76	312	53	. . .	. .	205
2,175	17,352	. . . . .	"	. .	39	"	"	435	5	241	72	.	. .	206
31,490	21,510	80,200	"	. .	40	"	"	470	67	239	90	802	100	207
25,573	18,630	32,112	"	. .	17	"	"	441	58	207	90	669	48	208
18,549	19,719	23,310	"	.	46	"	"	687	27	313	63	518	45	209
17,472	10,664	10,664	"	. .	17	"	"	192	91	124	86	124	86	210
133,411	104,411	146,286	"											

TABLE No. 6—

DELAWARE, LACKAWANNA AND

Number.	Name of Collieries.	Local name, number, or letter of each split of air.	Mode of ventilation.	Dimen. of Fan.		Revol'n of fan per minute.	Dimensions or area of furnace grate.
				Diameter in feet.	Width of face in ft.		
211	Hyde Park Shaft,	James Morris,	2 furnaces,				96
212	Do.	Henry Jones,	"				
213	Do.	R. T. Edwards,	"				
214	Do.	Lewis Moser,	"				
215	Archbald Shaft,	F vein, split,	Fan,	12	3½	140	
216	Do.	H vein, A,	"				
217	Do.	" C,	"				
218	Do.	" E,	"				
219	Do.	" F,	"				
220	Central Shaft,	West Side,	Fan,	12	3½	130	
221	Do.	F. Maughan,	"				
222	Do.	Wm. Beddoe,	"				
223	Do.	Pat. Hart,	"				
224	Do.	Morgan Edwards,	"				
225	Washburn St. Air Shaft,	Anthony Tinlin,	"	14	4	90	
226	Do. do.	Locomotive,	"				
227	Do. do.	John Langhan,	"				
228	Do. do.	Rock vein,	"				
229	Cayuga Shaft,	Wm. Humphreys,	Fan,	12	3½	100	
230	Do.	Daniel Price,	"				
231	Do.	John Stanton,	"				
232	Sloan Shaft,	Z and H,	"	12	3½	115	
233	Do.	K,	"				
234	Do.	N. J. M.,	"				
235	Do.	A,	"				
236	Do.	B,	"				
237	Do.	C,	"				
238	Brisbin Shaft,	Benj. Williams,	Fan,	14	4	118	
239	Do.	do. No. 2,	"				
240	Do.	Thos. Cowardine,	"				
241	Do.	John X. Davies,	"				
242	Do.	John B. Davies,	"				
243	Do.	J. X. Davies, No. 2,	"				
244	Do.	A. L. Starkey,	"				
245	Pyne Shaft,	David Powell,	Fan,	12	4	120	
246	Do.	Frank Hares,	"				
247	Do.	Wm. Riddle,	"				
248	Do.	James Lawless,	"				
249	Do.	Wm. Lander,	"				
250	Do.	David Day,	"				
251	Do.	Thos. Griffiths,	"				

Continued.

WESTERN RAILROAD COMPANY—*Continued.*

Amount of Ventilation per Minute.			Condition of ventilation.	Height of heated columns of air.	Number of persons working in each split.	Dimensions or area of intake in feet.	Dimensions or area of out or upcast in feet.	Velocity of air at intake.	Dimensions or area of place where air was measured.	Velocity of air at face of workings.	Dimensions or area of place where air was measured.	Velocity of air at out or upcast.	Dimensions or area of place where air was measured.	Number.
At intake.	At face of workings.	At outlet or upcast.												
. . . .	13,554	. . . . .	Good	273	50	10x21	10x14	. . .	. . .	251	54	. . .	. . .	211
. . . . .	15,744	. . . .	"	. .	49	"	"	.	. . .	328	48	. . .		212
39,150	13,896	39,424	"	. .	39	"	"	435	490	386	36	512	77	213
16,050	13,520	41,300	"	. .	49	"	"	214	75	338	40	590	70	214
55,200	56,714	80,724												
. . . . .	18,560	. . . . .	"	. .	40	21x20	10x10	. . .	. .	580	32	. . .	. . .	215
. . . . .	16,789	. . . . .	"	. .	38	"	"	.	. . .	163	103	. . .	. . .	216
19,412	17,629	. . . .	"	. .	49	"	"	211	92	289	61	.	.	217
49,632	14,235	21,437	"	. .	19	"	"	376	132	949	15	1,649	13	218
34,740	10,692	87,192	"	. .	28	"	"	386	90	243	44	1,211	72	219
103,784	77,905	108,629												
19,600	16,800	. . . . .	"	. .	29	10x14	10x9	620	128	200	84	. . .	. .	220
79,360	9,820	. . . .	"	.	36	. .	. . .	490	40	310	10	. . .	. . .	221
			"								60			
. . .	12,320	. . . .	"	. .	12	. .	. . .	.	.	460	22	. . .	. . .	222
19,360	11,880	. . . . .	"	. .	25	. . .	. . .	220	88	330	36	. . .	. . .	223
118,320	17,010	92,060	"	. .	45	. . .	. . .	. . .	. .	270	63	620	83	224
												580	70	
. . . .	16,432	. . . .	"	.	37	10x10	10x10	. .	.	208	79	. . .	. . .	225
14,280	12,610	. . . . .	"	. .	5	"	"	. . .	. .	194	65	.	. . .	226
10,500	14,720	. . . .	"	. .	43	"	"	210	68	.	. . .	650	73	227
								150	70	230	64	425	24	
24,780	9,720	57,650	"	. .	25	"	"	. . .	. . .	180	54	. . .	. . .	228
143,000	121,312	149,710												
. . .	16,790	. . . .	"	. .	50	10x15	9x10	. . .	. . .	230	73	. . .	. . .	229
. . . . .	16,100	. . . . .	"	. .	49	"	"	. . .	. . .	230	70	. . .	. . .	230
. . .	17,394	. . . . .	"	. .	50	"/	"	. . .	. . .	225	78	. . .	. . .	231
68,820	50,284	70,720	"	. .	. .	.	.	620	111	. .	. .	884	80	
35,616	14,460	50,184	"	. .	35	10x15	10x10	318	112	241	60	697	72	232
. . . .	5,824	. . . . .	"	. .	16	"	"	. .	. . .	182	32	. . .	. . .	233
. . .	13,520	. . . .	"	. .	25	"	"	. . .	. . .	338	40	. . .	. . .	234
34,324	21,792	. . . .	"	. .	42	"	"	338	98	454	48	. . .	. . .	235
37,422	25,584	2,970	"	. .	20	"	"	231	162	328	78	66	45	236
. . . . .	13,824	56,028	"	. .	25	"	"	. . .	. . .	. . .	. . .	483	116	237
107,362	95,004	109,182												
. . . . .	11,781	. . . . .	"	. .	30	10x15	10x9	. . .	. . .	153	77	. . .	. . .	238
. . . . .	14,140	. . . . .	"	. .	48	"	"	. . .	. . .	202	70	. . .	. . .	239
. . . . .	13,200	. . . . .	"	. .	39	"	"	. . .	. . .	220	60	. . .	. . .	240
. . . .	11,312	. . . . .	"	. .	36	"	"	. . .	. . .	202	56	. . .	. . .	241
22,500	13,440	. . . .	"	.	24	"	"	250	90	192	70	. . .	. . .	242
16,500	10,140	. . . . .	"	. .	33	"	"	250	66	169	60	. . .	. . .	243
52,780	9,180	. . . . .	"	. .	17	"	"	580	91	153	60	. . .	. . .	244
91,780	83,193	97,560		. .	.	. . .	. . .	. . .	. . .	. . .	. . .	813	120	
. . . . .	44,280	. . . . .	"	. .	50	10x14	10x10	. . .	. .	328	135	. . .	. . .	245
. . . . .	11,020	. . . .	"	.	32	. . .	. . .	. .	. .	145	76	. . .	. . .	246
29,268	17,010	. . . . .	"	. .	44	. . .	. . .	813	36	270	63	. . .	. . .	247
21,690	20,670	. . .	"	. .	45	. . .	. . .	241	90	265	78	. . .	. . .	248
49,800	22,491	116,480	"	. .	41	. . .	. . .	415	120	459	49	1,120	104	249
14,040	14,344	15,224	"	. .	23	. . .	. . .	270	52	163	88	173	88	250
7,125	5,880	7,839	"	. .	14	. . .	. . .	95	75	105	56	850	9	251
121,923	135,695	139,543												

TABLE No. 6—

DELAWARE, LACKAWANNA AND

Number.	Name of Collieries.	Local name, number, or letter of each split of air.	Mode of ventilation.	Dime. of Fan. Diameter in feet.	Dime. of Fan. Width of face in ft.	Revol'n of fan per minute.	Dimensions or area of furnace grate.
252	Jermyn, No. 3,	Burns,	2 Fans,	20	5	76	
253	Do.	Bringles,	"	15	5		
254	Do.	Collins,	"				
255	Do.	Vickers,	"				
256	Do.	Powell,	"				

DELAWARE AND HUDSON

257	Coal Brook,	West, No. 1,	Fan,	17	4	100	
258	Do.	West, No. 2,					
259	Do.	East, No. 1,					
260	Do.	East, No. 2,					
261	No. 1 Shaft,	No. 1 Shaft,	Fan,	17	4	75	
262	No. 3 Shaft,	No. 3 Shaft,	Fan,	17	4	100	
263	Do.	White Bridge Tun'l					
264	Powderly Slope,	East,					
265	Do.	North,	Fan,	17	4	65	
266	Do.	West,					
267	Jermyn, No. 1,	East,	Fan,	17	4	75	
268	Do.	Slope,					
269	Do.	West,					
270	Jermyn, No. 2,	Jermyn Slope,	Natural,				
271	White Oak,	White Oak Slope,	Fan,	17	4	36	
272	Do.	do. Tunnel,	Furnace,				
273	Grassy Island,	South,	Fan,	20	5	65	
274	Do.	Slope No. 1,					
275	Do.	Slope No. 2,					
276	Do.	North, No. 1,					
277	Do.	North, No. 2,					
278	Olyphant, No. 2,	South, No. 1,					
279	Do.	South, No. 2,					
280	Do.	East,					
281	Do.	West,					
282	Eddy Creek,	East,	Fan,	20	5	80	
283	Do.	North, No. 1,					
284	Do.	North, No. 2,					
285	Do.	Slope No. 1,					
286	Do.	Slope No. 2,					
287	Do.	West,					
288	Marvine, Diamond vein,	Diamond Split,	Fan,	20	5	80	
289	Do. 14-foot vein,	North,					
290	Do.	South,					
291	Do.	East,					
292	Do.	West,					
293	Do.	Slope No. 1,					
294	Do.	Slope No. 2,					
295	Leggett's Creek, Diamond vein,	North,	Fan,	20	5	81	
296	Do. 14-foot vein,	East,	"				
297	Do.	East, No. 1, s'th side	"				
298	Do.	East, No. 2, s'th side	"				
299	Do.	South, south side,	"				
300	Do.	River,	"				
301	Do.	East, north side,	"				
302	Do.	West,	"				
303	Do.	North,	"				

Continued.

WESTERN RAILROAD COMPANY—*Continued.*

Amount of Ventilation per Minute.			Condition of ventilation.	Height of heated columns of air.	No. of persons working in each split.	Dimensions or area of intake in feet.	Dimensions or area of out or upcast in feet.	Velocity of air at intake.	Dimensions or area of place where air was measured.	Velocity of air at face of workings.	Dimensions or area of place where air was measured.	Velocity of air at out or upcast.	Dimensions or area of place where air was measured.	Number.
At intake.	At face of workings.	At outlet or upcast.												
. . . . .	12,285	. . . . .	Good	. .	47	10x16	7x10	. . .	. . .	135	91	. . .	.	252
. . . . .	17,360	. . . . .	"	. .	48	"	"	. . .	. . .	280	62	. . .	. . .	253
6,720	22,176	. . . . .	"	. .	46	"	"	160	42	188	77	. . .	. . .	254
35,003	22,628	. . . . .	"	. .	48	"	"	493	71	294	77	. . .	. . .	255
66,992	14,328	. . . . .	"	. .	48	"	"	632	106	106	72	. . .	. . .	206
108,715	88,777	121,862	. . .	. .	. .	. . .	. . .	. . .	. . .	. . .	. . .	1,417	86	

CANAL COMPANY.

25,600	19,000			. .	75	. . .	. . .	. . .	45	422	. . .	. . .	. . .	257
16,500	10,000	110,000	Good	. .	50	181	96	483	48	208	. . .	1,145	96	258
35,400	20,800			. .	75				60	346	. . .			259
16,000	12,500			. .	50	. .	. .	. .	36	347	. . .	. .	. . .	260
25,000	13,000	72,000	"	. .	60	91	90	274	50	260	. . .	800	90	261
. . .	18,000	25,800	"	. .	60	. .	40	. .	48	475	. . .	645	40	262
25,000	22,000	52,000	"	. .	100	70	50	357	63	350	. .	1,040	50	263
40,800	26,650			. .	40	49	. .	. .	60	444	. . .	.	. .	264
52,100	23,100	99,860	"	. .	40	. . .	75	832	60	383	. . .	1,331	75	265
	15,200			. .	40	50	. . .	1,042	54	281	. . .	.	. . .	266
15,640	9,400			. .	40	. . .	. . .	. .	60	156	. .	.	. .	267
30,400	19,000	108,960	"	. .	40	235	125	432	63	301	. . .	870	125	268
55,600	26,700			. .	70	.	. . .	. .	72	371	. . .	.	. .	269
39,000	. . .	44,600	"	. .	100	91	90	428	. .	. . .	. . .	495	90	270
50,700	25,000	55,250	"	. .	100	60	100	845	66	379	. . .	552	100	271
25,600	15,200	32,400	Fair,	117	75	49	84	522	50	304	. . .	385	84	272
18,000	12,500			. .	60	. .	. . .	. .	60	208	. . .	.	. . .	273
13,200	9,000			. .	30				70	128	. . .			274
18,800	16,000	110,000	Good	.	49	190	120	471	66	240	. . .	916	120	275
39,600	15,480			. .	40	. . .	. . .	. .	50	309	. . .	. .	. . .	276
	12,000			. .	30	. . .	. . .	. .	48	250	. . .	. .	. . .	277
11,000	7,450			. .	35	. . .	. . .	. .	50	149	. . .	. .	. .	278
16,500	12,600			. .	33	. . .	. . .	. .	48	262	. .	.	. .	279
18,000	13,000			. .	44	. . .	. . .	. .	54	250	. . .	.	. .	280
6,500	6,000			. .		280	100	472	24	250	. .	1,588	100	281
17,800	13,400	158,800	"	. .	60	. . .	. .	. .	60	223	. . .	. .	. .	282
18,500	10,500			. .	18	. . .	. . .	. .	50	210	. . .	. .	. .	283
10,000	9,200			. .	13	. . .	. . .	. .	50	185	. . .	. .	. .	284
14,000	9,400			. .	43	. . .	. . .	. .	55	171	. . .	. .	. .	285
9,000	7,600			. .	28	. . .	. . .	. .	48	158	. .	. .	. .	286
11,000	8,750			. .	7	. . .	. . .	. .	32	272	. . .	. .	. .	287
13,000	11,200			. .	38	. . .	. . .	. .	66	168	. . .	. .	. .	288
19,000	13,210			. .	9	. . .	. . .	. .	70	188	. . .	. .	. .	289
23,800	20,000			. .	23	. . .	. . .		78	256	. .		.	290
24,600	20,820	141,000	"	. .	35	140	100	957	90	231	. . .	1,410	100	291
20,000	18,120			. .	40	. . .	. . .	. .	80	226	. . .	. .	.	292
14,800	13,000			. .	38	. . .	. . .	. .	70	179	. .	. .	. .	293
13,900	13,000			. .	46	. . .	. . .	. .	85	153	. . .	. .	. .	294
14,400	12,160			. .	22	. . .	. . .	. .	38	320	. . .	. .	. .	295
27,800	24,480			. .	20	. . .	. . .	. .	39	627	. . .	. .	. .	296
12,400	10,930			. .	31	140	124	1,043	81	135	. . .	1,258	124	297
15,100	12,480			. .	30	. . .	. . .	. .	78	160	. .	. .	. .	298
19,200	16,520	155,980	"	. .	28	. . .	. . .	. .	35	472	. . .	. .	. .	299
8,000	5,920			.	4	. .	. .	. .	4	1,230	. .	. .	. .	300
15,900	13,560			. .	29	. . .	. . .	. .	39	247	. . .	. .	. .	301
13,200	11,100			. .	32	. . .	. . .	. .	37	300	. . .	. .	. .	302
16,000	13,680			. .	26	. . .	. .	. .	38	360	. . .	. .	. .	303

TABLE No. 6—

DELAWARE AND HUDSON

Number.	Name of Collieries.	Local name, number, or letter of each split of air.	Mode of ventilation.	Dimen. of Fan.		Revol'n of fan per minute.	Dimensions or area of furnace grate.
				Diameter in feet.	Width of face in ft.		
304	Von Storch, Diamond vein, . .	Plane, ...	. . . . .	. . .	. . .	. . .	. . .
305	Do.	Rock heading, . .	. . . . .	. . .	. . .	. . .	. . .
306	Do.	Foot, No. 1, ...	. . . . .	. . .	. . .	. . .	. . .
307	Do.	Foot, No. 2, ...	Fans, ...	17	4	45	. . .
308	Do. 14-foot vein, . . .	North, ...	. . . . .	20	5	80	. . .
309	Do.	North, No. 1, . . .	. . . . .	. . .	. . .	. . .	. . .
310	Do.	North, No. 2, . . .	. . . . .	. . .	. . .	. . .	. . .
311	Do. Clark, ...	South, ...	. . . . .	. . .	. . .	. . .	. . .

NOTE.—There are 77 fans, 15 furnaces, 5 steam jets, and 12 mines ventilated by natural means.

Continued.

CANAL COMPANY—*Continued.*

Amount of Ventilation per Minute.			Condition of ventilation.	Height of heated columns of air.	Number of persons working in each split.	Dimensions or area of intake in feet.	Dimensions or area of out or upcast in feet.	Velocity of air at intake.	Dimensions or area of place where air was measured.	Velocity of air at face of workings.	Dimensions or area of place where air was measured.	Velocity of air at out or upcast.	Dimensions or area of place where air was measured.	Number.
At intake.	At face of workings.	At outlet or upcast.												
11,900	9,300			. .	50	. . .	. . .	. . .	42	220	. . .	. . .	. . .	304
7,000	6,200			. .	25	. . .	. . .	. . .	49	126	. . .	. . .	. . .	305
33,400	16,300			. .	50	. .	. .	. . .	44	370	. . .	. . .	. . .	306
13,400	11,100	141,500	Good	. .	40	. . .	. . .	. . .	49	226	. . .	. . .	. . .	307
15,100	11,000			. .	50	. . .	. . .	.	60	183	. . .	. .	. . .	308
42,600	10,300			. .	50	200	144	664	48	214	. . .	982	144	309
31,600	31,600			. .	38	. . .	. . .	. . .	52	607	. . .	. . .	. . .	310
24,600	21,100			.	49	. . .	. . .	. . .	54	390	. . .	. . .	. . .	311

TABLE No. 7.—*Statistics connected with the working of coal mines and collieries in the Eastern district of Luzerne and Carbon counties, now including all of Lackawanna and a portion of Wayne and Susquehanna counties, Pennsylvania, for year ending 31st day of December, A. D. 1883.*

MISCELLANEOUS COMPANIES.

NAMES OF COLLIERIES.	Dimensions of shaft in feet.	Depth of shaft in feet.	Dimensions of slope in feet.	Length of slope in feet.	Angle of slope in degrees.	Length of planes outside in feet.	Angle of plane outside in degrees.	Length of plane inside in feet.	Angle of plane inside in degrees.	Dimensions of tunnels in feet.	Length of tunnel to coal in feet.	Number of breakers.	Number of chutes.	What is the average width of chambers?	What is the average width of pillars?	What is the width of headings in feet?	What is the width of airways in feet?
Everhart Slope,			8 x12	131	30	80	25					1		24	15	10	14
Eagle Shaft,	16x10	152	6 x12	281	15	374	16½			7 x10	90	1		26	16	10	15
Tompkins Shaft	14x10	180	5½x12	230	14							1		24	15	12&14	15
Fairmount Shaft,	12x10	330	5½x18	330	10					6 x 6	275	1		24	16	18	18
	10x 8	330															
Twin Shaft,	16x 9	235	6 x15	170	26							1		30	18	12	12
	10 cir.	235												24	16	14	20
Beaver Slope,			7 x 8	200	20								1	30	18	12	12
Butler Shaft,	16x 9	100	6 x 8	110	14					6 x 8	280	1		26	16	16	20
Mosier Shaft,	16x10	168						350	14			1		25	16	12	15
	8x 8	124															
Heidelberg Shaft,	42x12	345	7 x14	448	25							1		25	21	12	12
Phœnix Shaft,	18x10	351										1		24	15	12	12
	8x 8	250															
Columbia Tunnel,								90	45	5½x5½	425	1		24	12	12	10
Stetler Shaft,	28x10	231	6 x10	1,000	2	250	25	1,000	2			1		27	15	12	15
	10x10	228															
Florence Shaft,	22x10	127										1		26	15	14	14
Hillside Shaft,	22x11	147	6 x16	400	6			225	20			1		28	10	14	14
	10x10	170						600	15								
Spring Brook Tunnel,	6x11	165	6 x10	600	6	120	45	400	45	6 x14	20	1		30	15	10	10
						200	23	700	23	6 x10	200	1					
Dunn Shaft,	10x26	75	7 x15	268	20							1		27	15	11	11
Sibley Shaft,	10x26	195	6 x 8	270	15							1		30	12	12	12
Greenwood Shaft and Drifts,	28x11	185	7 x14	1,200	10	550	30			6 x10	85	1		30	12	14	14
										6 x15	120						
										7 x12	110						
National Shaft and Slope,	27x11	225	7 x18	600	18°26′	120	18°26′	700	6			1		27	15	16	16
Meadow Brook Tunnel,								1,100	6	6 x14	220			27	15	16	16

Meadow Brook Shaft,	21x12	155	7 x 9	200	18°26′	180	18°26′	850	6	. . .	. .	1	. .	27	15	16	16
Bridge Slope,	. . . . .	. .	9 x .	885	12	50	18	750	2½	. . .	.	1	. .	27	18	12	15
						250	25	430	5								
Mount Pleasant Slope,	10x 7	175	8 x .	1,200	20′	300	10′	480	5½	. . . .	. . .	1	. .	30	21	11	12
								300	18								
Capouse Shaft,	10x30	355	. . .	. . . .	. . . .	261	30	800	5	. .	.	1	. .	30	18	12	12
	10x26	355															
Pine Brook Shaft,	10x22	287	. . . .	. . . .	. . . .	. .	. . . .	500	10	7 x16	500	1	. .	28	20	12	12
	13 cir.	287															
Fair Lawn Slope,	. . . . .	. . .	7 x12	320	25′	170	33	600	15	. . .	. .	1		30	16	16	16
				225													
Green Ridge Slope,	8 cir.	125	7 x12	600	19′	325	22	525	25	. . . .	. .	1	.	30	14	12	14
	10x34	200	. . . .	. . . .	. . . .	.	. . .	600	19								
Lucas Shaft,	10x14	62	. . .	. . .	. . . .	. .	. . . .	. . . .	. .	. . . .	. . .	1	. .	25	11	15	12
	10x30	150															
Pancoast Shaft and Slope,	10x20	60	7 x12	1,000	20	. .	. . .	. . .	. . . .	. . . .	. . .	1	. .	25	15	10	10
	10x34	224															
Jermyn, No. 4, Shaft,	11x24	466	. . . .	. . . .	. . . .	. .	. . .	490	20	. . . .	. . .	1	. .	27	15	10	10
	10x18	422															
Filer's Shaft,	10x22	110	. . .	. . .	. .	. .	. . .	350	15	. . . .	. .	1	.	30	12	12	12
Filer's Slope,	. . . .	. .	7 x 9	450	30	250	30	600	15	.		1	. .	30	12	12	12
Pierce Coal Company Tunnel,	. . . .	. . .	7 x12	900	14	300	15	.	.	7 x10	555	1	. .	30	14	12	12
Eaton Shaft, Slope, and Tunnel,	10 x14	60	6 x12	450	12	350	10	135	15	5½x10	60	1	. .	36	14	12	14
	10 x34	156	.	.	. .		. . .	. .		6 x12							
Erie Shaft,	10 x10	140	6 x12	1,160	3	. .	. . .	500	6	.	. . .	1	. .	30	15	12	12
	10 x30	177															
Keystone Tunnel,	10 x10	40	. . .	. . .	. . .		. . .	950	8	6 x10	140	1		30	15	12	12
Forest City Shaft,	10 x10	32	. . . .	. . . .	. . .		. . . .	. . . .	. . . .	. . .	. . .	1	1	25	24	12	12
	10½x20	86															
Belmont Drifts,	8 x10	21	. . .	. . .	. . . .	.	. . . .	. .	. . . .	6 x 6	50	1	. .	26	15	8	8
										6 x 6	45						
										6 x 6	40						
Totals,	45	8 793	25	13,628	25	4 130	17	14 050	25	18	3 215	37	2				

PENNSYLVANIA COAL COMPANY.

Shaft No. 1,	10 x20	430	. .	. . . .	. . . .	. .	. . .	. . . .	. . .	. . . .	. .		. .	25	15	10	15
No. 8 Breaker, Shaft No. 8,	9½x14½	206	. . . .	. . . .	. . . .	. .	. . .	550	6	. . . .	. .	1	.	25	15	10	15
								450	9								
Slope No. 6,	9½x14	98	.	. . .	. . .	. .	. . .	. .	. .	. . . .	. . .	.		20	15	10	14
Shaft No. 4,	9½x16½	233	11x 7	742	5½	.	. . .	375	8	. . . .	. . .		1	32	18	10	15
								429	6								
Shaft No. 5,	9½x15½	256	. . . .	. . . .	. . . .	.	. . .	500	9	. . . .	.	. .	. .	24	16	10	15
No. 6 Breaker,								450	10								
Shaft No. 6,	9½x16	312	8 x16	850	7		. . . .	275	7½	. . . .	. .	1	. .	24	16	10	15
Shaft No. 11,	10 x16	238	.	. . . .	. . . .	950	8	250	9	. . . .	.	.		24	16	10	15
Shaft No. 7,	9½x16	311	6 x10	500	7	.	. . . .	196	6	. . . .	. . .	.	1	24	18	12	15
								350	8								

TABLE No. 7.—PENNSYLVANIA COAL COMPANY—Continued.

NAMES OF COLLIERIES.	Dimensions of shaft in feet.	Depth of shaft in feet.	Dimensions of slope in feet.	Length of slope in feet.	Angle of slope in degrees.	Length of planes outside in feet.	Angle of plane outside in degrees.	Length of plane inside in feet.	Angle of plane inside in degrees.	Dimensions of tunnels in feet.	Length of tunnel to coal in feet.	Number of breakers.	Number of chutes.	What is the average width of chambers?	What is the average width of pillars?	What is the width of headings in feet?	What is the width of airways in feet?
Shaft No. 9,	10x19	140	....	....	....	..	....	150	11	....	....	..	..	24	15	10	15
								375	6								
Shaft No. 10, 7-foot,	.....	....	....	....	....	..	....	240	8								
No. 10 Breaker,								150	11								
Shaft No. 10, 14-foot,	12x27½	160	...	....	...	441	12	315	9								
								300	10	....	....	1	..	24	14	10	15
Shaft No. 10, Marcy,	12x31½	255	..	....	....	..	...	400	9								
								487	10	....	....		..	24	16	11	15
								330	9½								
Shaft No. 12,	10x18½	135	7x12	275	5	230	8	350	10								
Central Breaker,								220	10	....	..	.	1	30	15	10	15
Shaft No. 13,	12x31½	140	7x12	325	4¼	..		300	10								
Law Shaft,	12x24½	207	7x12	525	4¼	280	12	235	6½	...	....	..	..	26	16	12	15
Slope No. 2,			6x10	1,010	25		...	120	8	..		.	1	27	16	12	15
Slope No. 4,	10x12	77	7x10	640	7	520	7	..	....	6x7	92	..	1	24	16	10	15
			7x10	805	9												
Tunnel No. 1,	....	..	7x10	675	17	...	....	230	14	....	....	..	1	24	16	11	15
								342	10								
Stark Shaft and Breaker,	12x17	113	8x12	1,000	5½	...	....	...	....	....	..	..	1	25	16	12	16
			7x12	800	6												
Shaft No. 1, 7-foot vein,	12x47	127	...	....	....	...	....	245	9	....	....		..			...	...
Barnum Breaker, Shaft No. 1, 14-foot vein,		173	...	....	....	..	....	..	....	....	....	1	..	24	16	12	15
Shaft No. 2, 7-foot vein,	10x21		...	...	....	..	...	254	6	..	..			26	14	12	15
Shaft No. 2, 14-foot vein,		202	..				..	176	9	....	..	..		24	16	12	15
New Shaft, Lackawanna,	12x32	189	No	work	ings	yet											
Carbon Hill,	10x24	218	.		....	....	....	....	....	....	....	..	.	26	15	12	15
New Shaft Cooper Farm, (Sinking,)	12x52	70	Jan. 1,	1884.													
Eagle Shaft,	10x16	151	.	....	....	....	...	....	...	....	..	1	..	26	16	10	15
No. 2 Breaker,	..	..	..	...	....	....	....	....	....	....	....	1	..	.	..	....	...
No. 2 Shaft,	9⅛x14	87	...	...	....	....	....	....	....	....	....	..	..	....	....	....	....
No. 3 Shaft,	9½x14	87	.	..	....	....	....	....	....	....	....	.	..	.		....	....
Totals,	25	4,498	12	8,147	....	2,421	5	9,044	29	1	92	8	6	.	...	....	.

PENNSYLVANIA COAL COMPANY, DUNMORE DIVISION.

Shaft No. 2, top vein,	12x16	136	5x12	1,900	3½	.	. . . .	. . .	. .	. . .	.	1	1	28	17	12	15
" 2, bottom vein,	12x16	136						. .	. .	. . .	. . .			30	15	12	15
" 3, top vein,	12x18	60	5x12	1,250	3½	375	12	. . .	. . . .	. . .	. . .	1		30	15	12	15
" 3, middle vein,	12x18	102	. . .	. . .	. .	.	. .	. . .	. . .	. . . .	. . .			30	15	12	15
" 3, bottom vein,	12x18	167	. . . .	. . .	. .		. .	. . . .	. . . .	. . . .	. .			30	15	12	15
" 4, top vein,	12x17	50	. . . .	. . .	. . . .	.	. .	.	. .	. . .	. .	1		30	15	12	15
" 4, bottom vein,	12x17	100	. . . .	. .	. . . .	.	. .	762	3½	. .	. .			30	15	12	15
Total Pennsylvania Coal Company,	31	5,113	14	11,297	. . . .	2,796	6	9,806	30	1	92	11	7	. . .	. .	. . . .	.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY.

Diamond, No. 2, Shaft, G vein,	14x10	223	15x 6	148	22	. . .	. . . .	. . . .	. . . .	. . . .	. . .	1	. .	27	21	12	15
	10x17	385															
" " Slope, "	12x12	185	21x 7	375	14	. .	. .	480	6	12x 7	92	1	. .	30	18	12	15
" Tripp Slope, E vein,	10x14	350	11x 7	325	9	. . .	. . . .	. . . .	. . .	. . .	. . .	.	. .	30	15	12	12
Hampton Shaft,	9x17	156	7x14	810	6	. . .	. . .	. . . .	. . .	7x14	256	1	. .	30	18	12	15
	6x10	103															
Bellevue Shaft,	10x18	220	7x13	1,000	5	. . .	. . . .	. . . .	. . . .	. . . .	. . .	1	. .	30	15	12	15
			7x13	662	11° 7′		.	. . .									
" Slope,	9x10	221	7x14	265	5	79	15	. . . .	. . .	. . . .	. . .	. .	.	30	15	12	15
				581	7												
Scranton Coal Company Slope,	12x12	60	8x14	1,601	4	338	12	. . . .	. . . .	. . .	. .	1	. .	27	18	12	15
					11												
Continental Shaft,	10x21	297	. . . .	. . .	. .	. . .	. . . .	950	12	. . .	. . .	1	. .	27	15	12	15
	13 cir.	373															
Taylor Shaft,	10x20	180	6x 8	230	22	. . .	. . .	. . .	. . . .	.		1		30	15	12	15
" Drift,	12x16	180		. . .	. . . .		. . .	300	10	12x 6	300	. .	.	30	15	12	15
Oxford Shaft,	10x23	381	. . . .	. . . .	. . . .	260	14		. . . .	. . . .	. . .	1	. .	30	15	12	15
	10x24	354															
Dodge Shaft,	10x21	297	. . . .	. . .	. . . .	260	22	350	15	. . .	. .	1	. .	27	18	12	15
	13 cir.	254															
Hyde Park Shaft,	10x21	265	. . . .	. . .	. . .	.	. . .	249	14	. . .	. .	1	.	30	15	12	15
	12x12	238	.	.	. . .	. . .	. . . .	300	7								
Central Shaft,	10x34	320	7x12	900	2	. . .	. . . .	. .	. . . .	. . .	. . .	1	. .	28	17	12	15
	10x21	400															
Archbald Shaft,	10x27	354	7x12	563	17	115	8	350	4½	. . . .	. . .	1	. .	30	15	12	15
Cayuga Shaft,	10x32	368	. . . .	. . .	. . . .	. .	. .	300	11	. . .	. .	1	. .	30	18	12	15
								350	11								
Sloan Shaft,	10x35	500	7x24	800	22	. . .	. . . .	. .	. . . .	. . .	.	1		30	16	12	15
Brisbin Shaft,	10x37	378	.	. . . .	. . . .	355	8½	775	4	. . . .	. . .	1	. .	30	18	12	15
								589	5								
								239	12								
Pyne Shaft,	10x34	319	7x14	772	22	. . .	. . . .	150	6	. . .	. . .	1	.	30	18	12	15
								600	4								
Jermyn, No. 3, Shaft,	10x23	165	7x10	482	3¾	. .	. . . .	345	4	. . .	. .	1	. .	27	15	12	15
	10x18	185	7x10	528	4												
Total,	28	7,711	15	10,042	. . . .	1,407	6	6,327	15	3	648	17	. .	. . .	. .	. . . .	. .

TABLE No. 7.—*Continued.*

DELAWARE AND HUDSON CANAL COMPANY.

NAMES OF COLLIERIES.	Dimensions of shaft in feet.	Depth of shaft in feet.	Dimensions of slope in feet.	Length of slope in feet.	Angle of slope in degrees.	Length of planes outside in feet.	Angle of plane outside in degrees.	Length of plane inside in feet.	Angle of plane inside in degrees.	Dimensions of tunnels in feet.	Length of tunnel to coal in feet.	Number of breakers.	Number of chutes.	What is the average width of chambers?	What is the average width of pillars?	What is the width of headings in feet?	What is the width of airways in feet?
Racket Brook,	. .	. . .	. . . .	. . . .	. . . .	200	14½	. . .	. .	. . .	. . .	1				. . .	. .
Coal Brook,	10x18	40	. . . .	. . .	. . . .	200	14½	300	7⅛	7x10	250	1	. .	30	15	10	14
						200	9⅜	500	9⅜								
								487	11⅛	6x 9	300						
								450	6½	7x10	800						
No. 1 Shaft,	11x11	83	6x 8	300	8¼	600	9⅜	250	8¼	7x11	800		1	30	14	. . .	.
	9x 9	90	.	. . .	. .		. . .	400	4¾	. . . .		. .	. .	36	18	10	14
								450	11⅛								
No. 3 Shaft,	10x12	20	. . . .	. . . .	. . .	.	. . .	. . .	. .	. . . .	. .	. .	1	30	18	8	14
	10x27	90															
Powderley Slope,	8x10	80	7x10	700	7⅛	500	9⅜	. . . .	. . . .	. . . .	. . .		1	36	14	10	14
Jermyn No. 1,	9x23	90	7x12	1,500	4⅞	200	9⅜	. .	. . .	. . .	. .	1		36	14	12	12
	14x14	60															
" No. 2,	8x 8	132	7x12	200	11⅛	200	11⅛	450	4¾	. . .	.	1	. .	36	14	12	12
								500	4								
								450	5⅜								
White Oak,	7x 7	25	7x10	1 200	4	400	8¼	450	7⅛	7x10	150	1	.	36	14	12	14
	9x 9	81	.	. . . .	. .	500	11⅛	500	7⅛								
	12x12	30															
Grassy Island,	7x14	240	7x10	500	4⅛	200	14½	550	4⅛	. . .	. .	1	.	30	15	10	14
	10x27	400	. .	. .	. .	.	.	300	14½	. . .	.	. .	. .	. .	18		
	11x14	252															
Olyphant, No. 2,	10x30	408	.	.	. .	250	9⅜	450	5⅜	. . . .	. .	1	.	30	21	10	14
Eddy Creek,	10x27	386	6x10	600	4	250	11½	600	11⅛	. . .	. . .	1	. .	30	18	10	14
								700	5⅜								
Marvine,	10x42	340	7x12	550	4¾	300	11½	600	6½	.	.	1	. .	30	18	10	14
Leggett's Creek,	10x30	324	7x10	150	6⅛	700	11⅛	.	. . .	7x13	200	1	. .	30	18	10	14
	10x13	320															
Von Storch,	10x30	547	7x15	1,000	9½	280	14⅛	600	8½	7x10	750	1	. .	30	18	10	14
	10x14	257	7x10	550	4½	425	11½	600	4⅔								
								400	4⅔								
Total,	22	4,195	11	7,250	. . .	5,405	16	9,987	21	7	2,750	11	3		.	. . .	.

TABLE No 7—*Continued.*

MISCELLANEOUS COAL COMPANIES.

NAMES OF COLLIERIES.	Do you work airways along all gangways and headings?	Length of headings in feet.	Length of airways in feet.	Length of T iron track laid in mines.	Length of strap iron track laid in mines.	Length of T or S' strap iron laid outside.	What is the nature of the roof?	What is the name of the seam of coal worked?	What is the average thickness of the seam worked?
Everhart Slope,	Yes,	1,280	1,220	3,600	720	2,640	Hard rock,	Bottom seams,	9 feet.
Eagle Shaft,	Yes,	1,500	1,800	1,000	. . .	50	Slate,	Bottom 14-foot and Marcy,	13 and 6 ft.
Tompkins Shaft,	Yes,	1,110	1,980	3,740	. . . .	2,700 T	Rock,	14 feet and Clark,	9 and 4 ft.
Fairmount Shaft,	Yes,	5,700	4 400	7,400	.	1,450	Black rock, good,	Marcy and red ash,	4½ and 6 ft.
Twin Shaft,	Yes,	2,100	2.100	1,500	1,800	400	Solid rock,	Marcy,	4 to 9 feet.
Beaver Slope,	Yes,	Near	ly wor	ked	out pu	lling	back pillars.		
Butler Shaft,	Yes.	1 200	1,200	850		1,600	Solid rock,	Marcy,	5 feet.
Mosier Shaft,	Yes,	1,880	1,880	3,780	2,880	.	Hard rock,	Marcy,	8 feet.
Heidelberg Shaft,	Yes,	1 760	1,560	1 580	7,920	7,920 T	Good,	Marcy,	9 to 12 feet.
Phœnix Shaft,	Yes,	2 200	2 200	1,100	1 500	1,000 T	Rock,	14-foot and Marcy,	10 and 8 ft.
Columbia Tunnel,	Yes,	2.577	2,900	2.940	1,740	670	Rider and soapstone,	14-foot and Marcy,	7¼ feet.
Stetler Shaft,	Yes,	6,600	6,600	7,200	.	2.000 T	Fire-clay,	Stark,	7 feet.
Florence Shaft,	Yes,	1,000	1,000	1,300		5.000 T	Fair,	Clark,	10 feet.
Hillside Shaft,	Yes,	21,400	17,500	10,890	2 840	750 T	Slate,	B, or Stark,	6 feet.
Spring Brook Tunnel,	Yes,	23 804	18,174		None.	12,095	Slate,	B, or Stark,	7½ feet.
Dunn Shaft,	Yes,	1,475	800	2,000	None.	5,600 T	Slate,	Don't know,	6 feet.
Sibley Shaft,	Yes,	5 330	5,330	1,400	None.	1,400 S	Slate,	Big vein,	5 feet.
Greenwood Shaft and Drifts,	Yes,	38,900	40,350	11 250	1,500	5 380 T	Rock,	No. 5 seam,	3½ feet.
National Shaft and Slope,	Yes,	5,250	5 250	3,650	250	1,300 T	Hard sandstone,	No. 5 seam,	4 feet.
Meadow Brook Tunnel,	Yes,	22 000	22 000	12 000	400	5,700 T	Hard sandstone,	No. 5 seam,	4½ feet.
Meadow Brook Shaft,	Yes,	22.550	17,650	16,840	15,000	17.000 T	Hard sandstone,	No. 5 seam,	4 feet.
Bridge Slope,	Yes,	5 250	5 200	6,100	350	2,000 T	Slate,	Rock and G vein,	7 and 14 ft.
Mount Pleasant Slope,	Yes,	17,670	17.670	5,500	7,975	8 400	Slate,	Rock and G vein,	7 and 14 ft.
Capouse Shaft,	Yes,	28 800	28,800	43,700	None.	14,100 T	Rock and bony,	Clark vein,	7½ feet.
Pine Brook Shaft,	Yes,	1,700	1.700	6,960	None.	6 000 T	Rock,	Second below Clark,	4½ feet.
Fair Lawn Slope,	Yes.	5,200	5.100	6,800	None.	6.200 T	Rock,	Clark and first Dunmore,	8 and 5 ft.
Green Ridge Slope,	Yes,	4,000	4.000	5,000	6 000	1,000	Slate,	Clark and first Dunmore,	8 and 4½ ft.
Lucas Shaft,	Yes,	2.000	2,000	1.800	1,000	600 T	Slate,	G, or Big vein,	14 feet.
Pancoast Shaft and Slope,	Yes,	2 565	2,278	4.965	1 000	15 938 T	Rock,	Clark vein,	6 feet.
Jermyn No. 4 Shaft,	Yes,	3,000	3,000	3,500	400	800	Rock,	Don't know,	14 and 6½ ft.
Filer's Shaft,	Yes,	9,000	6,050	6,400	5,500	7 920 T 700 S			

TABLE. NO 7—*Continued.*

MISCELLANEOUS COAL COMPANIES--Continued.

NAMES OF COLLIERIES.	Do you work airways along all gangways and headings?	Length of headings in feet.	Length of airways in feet.	Length of T iron track laid in mines.	Length of strap iron laid in mines.	Length of T or S' = strap iron laid outside.	What is the nature of the roof?	What is the name of the seam of coal worked?	What is the average thickness of the seam worked?
Filer's Slope,	Yes,	7,200	7,200	3,900	4,700	3 600 T	Rock,	Archbald vein,	9 feet.
Pierce's Coal Company Tunnel,	Yes,	6,500	6,500	5,000	6,000	1 800 S 15, 840 T	Sandstone,	Archbald vein,	10 feet.
Eaton Shaft, Slope, and Tunnel,	Yes,	7,900	1,750	1,100	6,700	16 350 T	Sandstone,	Archbald vein,	7 feet.
Erie Shaft,	Yes,	21 200	19,200	6,367	13,890	3, 572 T	Hard sandstone,	Carboudale vein,	7½ feet.
Keystone Tunnel,	Yes,	3,635	2 503	1,400	None.	592 T	Bony and slate,	Carboudale vein,	7½ feet.
Forest City Shaft,	Yer,	2,440	2 870	4 445	None.	2,649 T	Slate,	Forest City seam,	5 feet.
Belmont Drifts,	Yes,	5,080	4 900	10,000	None.	1,800 T	Slate,	Nos. 2 and 3, Carbondale,	6 and 5½ ft.
Totals,	....	302 752	276, 566	213, 157	89, 665	183, 816			

PENNSYLVANIA COAL COMPANY.

No. 8 Breaker, Shaft No. 1,	Yes,	5 200	5,000	4,700	900	400	Sandstone,	Marcy vein,	9 feet.
No. 8 Breaker, Shaft No. 8,	Yes,	13,000	12, 800	13,850	2,400	1,600	Sandstone,	Marcy vein,	9 feet.
No. 8 Breaker, Slope No. 6,	Yes,	1,700	1,700	1,700	1,200	1,300	Slate,	Pittston 7-foot vein,	5½ feet.
Shaft No. 4,	Yes,	6,500	4,300	13 863	14,580	1,070	Slate,	Pittston 14-foot and Marcy,	13 and 5 ft.
No. 6 Breaker, Shaft No. 5,	Yes,	15,500	15,500	14,700	800	3,400	Rider coal and rock,	Pittston 14-foot vein,	10 feet.
No. 6 Breaker, Shaft No. 6,	Yes,	15,875	15,175	9,800	6 100	250	Rider coal and rock,	Pittston 14-foot vein,	11 feet.
No. 6 Breaker, Shaft No. 11,	Yes,	16,000	16,000	12,000	3,300	1,925	Slate and rock,	Pittston 14-foot and Marcy,	11-3 feet.
Shaft No. 7,	Yes,	18,850	15,400	11,325	8,050	1,030	Rider coal and slate,	Pittston 14-foot vein,	11½ feet.
No. 10. Breaker, Shaft No. 9,	Yes,	7,400	8,600	8,080	3,200	2,000	Rider coal and slate,	Pittston 14-foot vein,	8 feet.
No. 10. Breaker, Shaft No. 10, 7-foot.									
No. 10. Breaker, Shaft No. 10, 14-foot,	Yes,	10,500	9,200	5,540	5 800	4,200	Rider coal and slate,	Pittston 14-foot vein,	8 feet.
No. 10. Breaker, Shaft No. 10, Marcy,	Yes,	14,741	13,370	13 111	5 140	1,851	Sandstone,	Marcy vein,	8 feet.
Central Breaker, Shaft No. 12,	Yes,	6,150	18,000	5 250	1,800	1 938	Rock and slate,	Powder-mill vein,	10 feet.
Central Breaker, Shaft No. 13,	Yes,	14,885	11,375	10,045	2 000	5,220	Rock and slate,	Powder-mill vein,	10 feet.
Central Breaker, Law Shaft,	Yes,	13,975	13,975	10,400	2,050	5,160	Rock and slate,	Powder-mill vein,	10 feet.
Slope No. 2,	Yes,	19,200	18,300	16 000	1,000	800	Slate,	Pittston 14-foot vein,	10 feet.
Slope No. 4,	Yes,	14,450	14,200	11,375	11 917	8,520	Slate,	Pittston 14-foot vein,	11 feet.

Tunnel No. 1,	Yes,	9,323	8 583	7,340	8,600	990	Rock,	Marcy vein,	5 feet.
Stark Shaft and Breaker,	Yes,	5,500	5,280	7,860	2,580	1,330	Rock and slate,	Powder-mill vein,	10 feet.
Barnum Breaker, Shaft No. 1, 7-foot vein,	Yes,						Slate,	Pittston 7-foot vein,	7 feet.
Barnum Breaker, Shaft No. 1, 14-foot vein,	Yes,	10,000	12,000	10,000		2,500	Slate and rider,	Pittston 14-foot vein,	9 feet.
Barnum Breaker, Shaft No. 2, 7-foot vein,	Yes,	5,000	7,000	9,150	400	2 700		Pittston 7-foot vein,	7 feet.
Barnum Breaker, Shaft No. 2, 14-foot vein,	Yes,	3,400	5,000					Pittston 14-foot vein,	9 feet.
New Shaft, Lackawanna, Carbon Hill,	Yes,	1,800	1,800	600	400	300	Rock,	Powder-mill vein,	9 feet.
New Shaft, Cooper farm, (sinking,) Eagle Shaft, No. 2 Breaker. No. 2 Shaft, No. 3 Shaft,	Yes,	1,500	1,800	1,000	None.	500	Slate,	Pittston 14-ft. and Marcy vein,	13 and 6 ft.
Totals,		230,439	239,358	197,789	82,217	48,984			

PENNSYLVANIA COAL COMPANY, DUNMORE DIVISION.

Shaft No. 2, top vein,	Yes,	3,600	3,600	2,500	2 500	1,690	Slate and bony,	Dunmore top vein,	5 feet.
" 2, bottom vein,	Yes,	1,000	1,000	200	2,000		Slate and bony,	Dunmore bottom vein,	3½ feet.
" 3, top vein,	Yes,	6,500	6,500	2,600		500	Sandstone,	Dunmore top vein,	4½ feet.
" 3, middle vein,	Yes,	4 950	4 950	2,000	200		Slate,	Dunmore middle vein,	4½ feet,
" 3, bottom vein,	Yes,	4,700	4,700	3,000	400		Slate,	Dunmore bottom vein,	4½ feet.
" 4, top vein,	Yes,	3,850	3 850				Slate,	Dunmore middle vein,	4½ feet.
" 4, bottom vein,	Yes,	8 300	8,300	5,000	300		Slate,	Dunmore bottom vein,	4½ feet.
Total Pennsylvania Coal Company,		233,339	272,258	213,089	87,617	51,174			

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY.

Diamond No. 2, Shaft, G vein,	Yes,			19,235	350	6,564	Slate,	G, or Big vein,	12 feet.
" " Slope, G vein,	Yes,			25,740	480	6,564	Slate,	G, or Big vein,	12 feet.
" Tripp Slope, E vein,	Yes,			16,826				E, or Diamond,	6 feet.
Hampton Shaft,	Yes,			61,225	3,000	5,400		E and F or T veins,	5½ and 7 ft.
Bellevue Shaft,	Yes,			22,187		6,060	Rock,	Clark, X X X,	7 feet.
" Slope,	Yes,			13,746			Slate,	F,	8½ feet.
Scranton Coal Company Slope,	Yes,			29,512	1,943	6,300	Rock,	Clark,	6½ feet.
Continental Shaft,	Yes,			21,887	10,080	5,400	Rock,	Clark,	7½ feet.
Taylor Shaft,	Yes,			43,146	5,400	4,370	Slate,	Clark,	6 feet.
" Drift,	Yes,						Slate,	F,	6 feet.
Oxford Shaft,	Yes,			4 300		2,459	Clark rock and G slate,	Clark and Big,	7 and 14 ft.
Dodge Shaft,	Yes,			28,688	2,850	7,640	Slate,	F and G veins,	7 and 12 ft.
Hyde Park Shaft,	Yes,			23 676	990	2,790	Slate,	F and G veins,	7 and 10 ft.
Central Shaft,	Yes,			43 700	3,200	1,550	Slate,	F and G veins,	7 and 14 ft.
Archbald Shaft,	Yes,			17,019		3,820	Slate,	F and Clark,	7 and 7½ ft.

TABLE No. 7—*Continued.*

DELAWARE LACKAWANNA AND WESTERN RAILROAD COMPANY—Continued.

NAMES OF COLLIERIES.	Do you work airways along all gangways and headings?	Length of headings in feet	Length of airways in feet.	Length of T iron track laid in mines.	Length of strap iron track laid in mines.	Length of T or S. strap iron laid outside.	What is the nature of the roof?	What is the name of the seam of coal worked?	What is the average thickness of the seam worked?
Cayuga Shaft,	Yes,	....	....	27,175	....	3,940	Slate,	G and E veins,	10 and 8 ft.
Sloan Shaft,	Yes,	....	....	19,527	....	3,200	Slate,	G and Clark,	10 and 9 ft.
Brisbin Shaft,	Yes,	....	....	26,171	2,088	5,910	Slate,	G,	10 feet.
Pyne Snaft,	Yes,	....	....	46 299	....	4 500	Slate,	Clark and new county,	13 and 7 ft.
Jermyn No. 3, Shaft,	Yes,	....	....	17,208	450	3,200	Slate,	Clark,	7 feet.
Total,		....	....	507,267	30,831	74,747			

DELAWARE AND HUDSON CANAL COMPANY.

Racket Brook.									
Coal Brook,	Yes,	....	....	....	....	.....	Rock,	Top and bottom.	
No. 1 Shaft,	No,	....	....	....	....	.....	Slate and rock,	Top and bottom.	
No. 3 Shaft,	No,	....	....	....	....	.....	Slate,	Bottom.	
Powderly Slope,	No,	....	....	....	....	.....	Rock,	Top and bottom.	
Jermyn No. 1,	Yes,	....	....	....	....	.....	Rock,	Archbald.	
" No. 2,	Yes,	....	....	....	....	.....	Rock,	Archbald.	
White Oak,	Yes,	....	....	....	....	.....	Rock,	Archbald.	
Grassy Island,	Yes,	....	....	....	....	.....	Rock,	Grassy vein.	
Olyphant No. 2,	Yes,	....	....	....	....	.....	Slate and rock,	Grassy vein.	
Eddy Creek,	Yes,	....	....	....	....	.....	Slate and rock,	Grassy vein.	
Marvine,	Yes,	....	....	....	....	.....	Slate and rock,	Diamond and 14-foot.	
Leggett's Creek,	Yes,	....	....	....	....	.....	Slate and rock,	Diamond and 14-foot.	
Von Storch,	Yes,	....	....	....	....	.....	Slate and rock,	14-foot Diamond and Clark.	
Total,									

Headings, airways, and iron tracks are about the same as in 1882,

TABLE No. 7.—*Continued.*

RECAPITULATION.

NAMES OF COMPANIES.	Number of shafts.	Depth of shaft in feet.	Number of slopes.	Length of slope in feet.	Length of planes outside in feet.	Number of planes outside.	Length of plane inside in feet.	Number of planes inside.	Number of tunnels	Length of tunnels to coal in feet.	Number of breakers.	Number of screens and chutes.	Length of headings in feet.	Length of airways in feet.	Length of T iron track laid in mines.	Length of strap iron track laid in mines.	Length of T or S = strap iron laid outside.
Miscellaneous Coal Companies,	45	8 793	25	13,628	4,130	17	14 050	25	18	3,215	37	2	302 752	276,566	213,157	89,665	183 816
Pennsylvania Coal Company,	31	5,113	14	11,297	2,796	6	9,806	30	1	92	11	7	263,339	272 258	213,089	87,617	51 174
Delaware, Lackawanna and Western Railroad Company,	28	7,711	15	10.042	1,407	6	6 327	15	3	648	17				507,267	30,831	74,747
Delaware and Hudson Canal Company,	22	4 195	11	7,250	5 405	16	9,987	21	7	2,750	11	3	Same as	1882.			
Totals,	126	25 812	65	42,217	13 738	45	40,170	91	29	6,705	76	12					

There are 126 shafts, with a total depth of 25.812 feet.
There are 65 slopes, with a total length of 42 217 feet.
There are 45 outside planes, with a total length of 13 738 feet.
There are 91 inside planes, with a total length of 40 170 feet.
There are 29 tunnels, with a total distance of 6,705 feet to coal.
There are 76 breakers.
There are 12 buildings with chutes for the purpose of loading coal.
There are 7 small breakers connected with local coal sale mines.
There will be 8 new breakers finished and ready to ship coal in 1884.

TABLE No. 7—*Continued.*

MISCELLANEOUS COAL COMPANIES.

NAMES OF COLLIERIES.	Have you got an ambulance and stretchers at your mines?	Is the breaker machinery fenced and boxed off?	Are the shaft landings protected by safety-gates?	Is there a metal speaking-tube in the shaft or slope?	Is there a safety-carriage or cage, with all modern improvements?	Is there a safety-carriage or cage furnished whenever ten men are waiting to come out of mines?	Are persons allowed to ride on loaded cars in shafts or on slopes and planes?	Are there more than ten persons allowed to ride on safety-carriage or cage at one time?	Are the engineers experienced, competent, and sober men?	Have they reported the condition of boilers according to law? Are they in a safe condition?	Have they furnished a map or plan of mine workings?
Everhart Slope,	Yes, . .	Yes, .	. . . . .	No, . .	. . .	. . . . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Eagle Shaft,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Tompkins Shaft,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Fairmount Shaft,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Twin Shaft,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes. . .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Beaver Slope,	Yes, . .	This mine	is about	finished.	They	have only	a few mo	'ths work	to finish	pull'g out	the pill'rs
Butler Shaft,	Stretch's	Yes, . .	Yes, .	Yes, . .	Yes, . .	Yes, .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Mosier Shaft,	Stretch's	Yes, . .	No shafts	planes,or	slopes	working.	. . . . .	. . . . .	. . . . .	Yes, . .	Yes.
Heidelberg Shaft,	Yes, .	Yes, . .	Yes, . .	Yes,	Yes, . .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Phœnix Shaft,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes. . .	No, . .	No, . .	Yes, .	Yes, . .	Yes.
Columbia Tunnel,	Yes, . .	Yes, . .	. . . . .	. . . .	. . . .	. . . . .	. . . . .	. . . . .	Yes, . .	Yes, . .	Yes.
Stetler Shaft,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	No, . .	No, . .	Yes, .	Yes, . .	Yes.
Florence Shaft,	Stretch's	Yes, . .	Yes, . .	Yes, .	Yes, . .	Yes, . .	Nc, . .	No, .	Yes, . .	Yes, . .	No.
Hillside Shaft,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Spring Brook Mines,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	No, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Dunn Shaft,	Yes, . .	Yes' . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Sibley (Anthracite) Shaft,	Yes, . .	Yes, . .	Yes, .	Yes, . .	Yes,	Yes, . .	No, . .	No, .	Yes, . .	Yes, . .	Yes.
Greenwood Mines,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
National Shaft and Slope,	Yes, .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Meadow Brook Tunnel,	Yes, . .	Yes, . .	Yes, . .	No man	way.	. . . . .	. . . . .	. . . . .	Yes, . .	Yes, . .	Yes.
Meadow Brook Shaft,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	. . . . .	No, . .	. . . . .	Yes, . .	Yes, . .	Yes.
Bridge Slope,	Yes, . .	Yes, . .	. . . . .	Yes, . .	No, . .	No, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Mount Pleasant Slope,	Yes, . .	Yes, . .	. . . . .	Yes, . .	. . . .	. . . . .	. . . . .	. . . . .	Yes, .	Yes, . .	Yes.
Capouse Shaft,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Pine Brook Shaft,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Fair Lawn Slope,	Breaker	burned	down Sep	tember	last.	Mine is	idle	since.			
Green Ridge Slope,	Yes, . .	Yes, . .	. . . .	Yes, . .	. . . .	. . . .	. . . .	. . . .	Yes, . .	Yes, . .	Yes.
Lucas Shaft,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Pancoast Shaft and Slope,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.
Jermyn, No. 4, Shaft,	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	Yes, . .	No, . .	No, . .	Yes, . .	Yes, . .	Yes.

Lackawanna Coal Company, (new,)	Yes,	Yes,	Yes,	Yes,	Yes,	Ye3,	No,	No,	Yes,	Yes,	Yes.
Filer's Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
Filer's Slope,	Yes,	Yes,	.....	Yes,	.....	.....	No,	No,	Yes,	Yes,	Yes.
Pierce Coal Company Tunnel,	Yes,	Yes,	.....	.....	.....	.....	.....	.....	Yes,	Yes,	Yes.
Eaton Shaft, Slope, and Tunnel,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
Erie Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
Keystone Tunnel,	Yes,	Yes,	.....	.....	.....	.....	No,	.....	.....	Yes,	Yes.
Forest City Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
Belmont Drifts,	Yes,	Yes,	.....	.....	.....	.....	.....	.....	Yes,	Yes,	Yes.

PENNSYLVANIA COAL COMPANY.

No. 8 Breaker,	Shaft No. 1,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
	Shaft No. 8,	Yes,										
	Slope No. 6,	Yes,										
Shaft No. 4,	14-foot vein,	Yes,	.....	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
	Marcy vein,	Yes,										
No. 6 Breaker,	Shaft No. 5,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
	Shaft No. 6,	Yes,										
	Shaft No. 11,	Yes,										
Shaft No. 7,		Yes,	.....	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
No. 10 Breaker,	Shaft No. 9,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
	Shaft No. 10, 7-foot vein,	Yes,										
	Shaft No. 10, 14-foot vein,	Yes,										
	Shaft No. 10, Marcy vein,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
	Do. do.	Yes,										
	Do. do.	Yes,										
	Do. do.	Yes,										
	Do. do.	Yes,										
Central Breaker,	Shaft No. 13,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
	Shaft No. 12,	Yes,										
	Law Shaft,	Yes,										
Slope No. 2,		Yes,	.....	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
Slope No. 4,		Yes,	.....	.....	.....	.....	.....	No,	No,	Yes,	Yes,	Yes.
Tunnel No. 1,		Yes,	.....	.....	.....	.....	.....	No,	No,	Yes,	Yes,	Yes.
Stark Shaft and Breaker,		Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
Barnum Breaker,	Shaft No. 1, 7-foot vein,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No.	Yes,	Yes,	Yes.
	Shaft No. 1, 14-foot vein,	Yes,										
	Shaft No. 2, 7-foot vein,	Yes.										
	Shaft No. 2, 14-foot vein,	Yes,										
New Shaft, Lackawanna,		Sinking.										
Carbon Hill,		Yes,	.....	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
New Shaft, Cooper farm,		Sinking.										
Eagle Shaft,		Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
No. 2 Breaker,		Yes,	Yes.									
Shaft No. 2,		Yes,	.....	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
Shaft No. 3,		Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.
Shaft No. 4,		Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes.

TABLE No. 7.—*Continued.*

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY.

NAMES OF COLLIERY.	Have you got an ambulance and stretchers at your mines?	Is the breaker machinery fenced and boxed off?	Are the sahft landings protected by safety-gates?	Is there a metal speaking-tube in the shaft or slope?	Is there a safety-carriage or cage with all modern improvements?	Is there a safety carriage or cage furnished whenever ten men are waiting to come out of the mines?	Are persons allowed to ride on loaded cars in shafts or slopes or planes?	Are there more than ten persons allowed to ride on safety-carriage or cage at one time?	Are the engineers experienced, competent, and sober men?	Have they reported the condition of boilers according to law? Are they in a safe condition?	Have they furnished a map or plan of mine workings?
Diamond, No. 2, Shaft G,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Diamond, No. 2, Slope G,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Diamond, Tripp, Slope E,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Hampton Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Bellevue Shaft	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Bellevue Slope,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Scranton Coal Company Slope,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Oxford Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Taylor Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Taylor Drift,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Dodge Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Continental Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Hyde Park Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Central Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Archbald Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Cayuga Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Brisbin Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Sloan Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Pyne Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,
Jermyn, No. 3, Shaft,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	Yes,	Yes,	Yes,

DELAWARE AND HUDSON CANAL COMPANY.

Racket Brook,	Yes,		Yes,						Yes,		
Coal Brook,	Yes,		Yes,				No,				Yes,
No. 1 Shaft,	Yes,		Yes,	No,			No,				Yes,
No. 3 Shaft,	Yes,		Yes,	No,	Yes,	No,	No,	No,			Yes,
Powderley Slope,	Yes,		Yes,	No,			No,				Yes,

| | | |

TABLE No. 7—*Continued.*

MISCELLANEOUS COAL COMPANIES—*Continued.*

Names of Collieries.	Do the parties having charge know their duties in case of death or serious accidents?	Is the mining boss a competent and practical man?	Has the mining boss an assistant or first boss?	Is the mine examined every morning before persons are allowed to enter it to work?	Is the mine examined every evening to see that the main doors are all closed?	Are there attendants at all main doors?	Are the doors hung on main roads so as to close of their own accord?	Are there double doors on main travelled roads?	Is there an extra door in case of an accident to any of the other doors?	Is there any noxious or inflammable gas evolved in the mines?	Are you working towards where there is any standing water or gas?	Are you familiar with the mine law of 1870, and its supplements?	Have you established a code of mine rules for the better protection of life and property?	Have you got a second opening yet?
Everhart Slope,	Yes,	Yes,	No,	Yes,	Yes,	Yes,	Yes,	No,	No,	No,	No,	Yes,	Yes,	Yes,
Eagle Shaft,	"	"	Yes,	"	"	"	"	Yes,	Yes,	Yes,	Yes,	"	"	"
Tompkins Shaft,	"	"	"	"	"	"	"	"	No,	No,	No,	"	"	"
Fairmount Shaft,	"	"	No,	"	"	"	"	No,	"	No,	"	"	"	"
Twin Shaft,	"	"	Yes,	"	"	"	"	Yes,	Yes,	Yes,	"	"	"	"
Butler Shaft,	"	"	"	"	"	"	"	"	"	No,	"	"	"	"
Moster Shaft,	"	"	No,	"	"	"	"	"	"	No,	"	"	"	"
Heidelberg Shaft,	"	"	Yes,	"	"	"	"	"	"	"	"	"	"	"
Phœnix Shaft,	"	"	"	"	"	"	"	"	Yes,	Yes,	"	"	"	"
Columbia Tunnel,	"	"	No,	"	"	"	"	"	"	No,	"	"	"	"
Stetler Shaft,	"	"	Yes,	Yes,	"	"	"	"	Yes,	Yes,	"	"	"	"
Florence Shaft,	"	"	No,	No,	"	"	"	"	"	No,	"	"	"	"
Hillside Shaft,	"	"	"	"	No,	"	"	No,	No,	"	"	"	"	"
Spring Brook Mines,	"	"	"	"	"	"	"	"	"	"	"	"	"	"
Dunn Shaft,	"	"	"	"	"	"	"	"	Yes,	"	"	"	"	"
Sibley (Anthracite) Shaft,	"	"	"	"	"	"	"	"	"	Yes,	"	"	"	"
Greenwood Mines,	"	"	Yes,	"	"	"	"	"	"	"	"	"	"	"
National Shaft and Slope,	"	"	"	"	"	"	"	"	"	Yes,	"	"	Yes,	"
Meadow Brook Tunnel,	"	"	"	"	"	"	"	"	"	No,	"	"	"	"
Meadow Brook Shaft,	"	"	"	"	"	"	"	"	"	Yes,	Yes,	"	"	"
Bridge Slope,	"	"	"	"	"	"	"	"	No,	"	"	"	"	"
Mount Pleasant Slope,	"	"	"	"	"	"	"	"	Yes,	"	No,	"	"	"
Capouse Shaft,	"	"	"	"	"	"	"	"	"	"	"	"	"	"
Pine Brook Shaft,	"	"	"	"	"	"	"	"	"	"	"	"	"	"
Green Ridge Slope,	"	"	"	Yes,	Yes,	"	"	Yes,	"	"	"	"	"	"
Lucas Shaft,	"	"	"	"	"	"	"	"	"	"	"	"	"	"
Pancoast Shaft and Slope,	"	"	"	"	"	"	"	"	"	No,	"	"	"	"
Jermyn, No. 4, Shaft,	"	"	"	"	"	"	"	"	"	Yes,	"	"	"	"

Lackawanna Coal Company, (new,)	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	Yes,	Yes,	Yes.
Filer's Shaft,	"	"	"	"	"	"	"	No,	No,	No,	"	"	"	"
Filer's Slope,	"	"	No,	"	"	"	"	"	"	"	"	"	"	"
Pierce Coal Company Tunnel,	"	"	"	No,	"	"	"	"	"	"	"	"	"	"
Eaton Shaft, Slope, and Tunnel,	"	"	"	"	"	"	"	"	"	"	"	"	"	No.
Erie Shaft,	"	"	"	"	No,	"	"	"	"	"	"	"	"	Yes.
Keystone Tunnel,	"	"	Yes,	"	"	"	"	"	"	"	"	"	"	"
Forest City Shaft,	"	"	No,	"	"	"	"	"	"	"	"	"	"	"
Belmont Drifts,	"	"	"	"	"	"	"	"	"	"	"	"	"	"

PENNSYLVANIA COAL COMPANY—*Continued.*

No. 8 Breaker,	Shaft No. 1, Shaft No. 8, Slope No. 6,	Yes,	Yes,	No,	....	....	Yes,	Yes,	....	....	No,	No,	Yes,	Yes,	Yes.
Shaft No. 4,	14-foot vein, Marcy vein,	"	"	Yes,	Yes,	Yes,	"	"	....	....	Yes,	"	"	"	"
No. 6 Breaker,	Shaft No. 5, Shaft No. 6, Shaft No. 11,	"	"	"	"	"	"	"	....	....	"	"	"	"	"
Shaft No. 7,		"	"	"	"	"	"	"	....	....	"	"	"	"	"
No. 10 Breaker,	Shaft No. 9, Shaft No. 10, 7-foot vein, Shaft No. 10, 14-foot vein,	"	"	No,	No,	No,	"	"	....	....	No,	"	"	"	"
	Shaft No. 10, Marcy vein, Do. do. Do. do. Do. do.	"	"	Yes,	Yes,	Yes,	"	"	....	....	Yes,	"	"	"	"
Central Breaker,	Shaft No. 13, Shaft No. 12, Law Shaft,	"	"	"	"	"	"	"	....	....	"	"	"	"	"
		"	"	No,	No,	No,	"	"	....	....	No,	"	"	"	"
		"	"	Yes,	Yes,	Yes,	"	"	....	....	Yes,	"	"	"	"
Slope No. 2,		"	"	"	"	"	"	"	....	....	"	"	"	"	"
Slope No. 4,		"	"	No,	No,	No,	"	"	....	....	No,	"	"	"	"
Tunnel No. 1,		"	"	"	"	"	"	"	....	....	"	"	"	"	"
Stark Shaft and Breaker,		"	"	Yes,	Yes,	Yes,	"	"	....	....	Yes,	"	"	"	"
Barnum Breaker,	Shaft No. 1, 7-foot vein, Shaft No. 1, 14-foot vein, Shaft No. 2, 7-foot vein, Shaft No. 2, 14-foot vein,	"	"	"	"	"	"	"	....	....	"	"	"	"	"
Carbon Hill,		"	"	"	"	"	"	"	....	....	"	"	"	"	"
Eagle Shaft,		"	"	"	"	"	"	"	....	....	"	"	"	"	"
Shaft No. 2,		"	"	"	No,	No,	"	"	No,	Yes,	No,	"	"	"	"
Shaft No. 3,		"	"	"	"	"	"	"	"	"	"	"	"	"	"
Shaft No. 4,		"	"	"	"	"	"	"	"	"	"	"	"	"	"

TABLE No. 7.—*Continued.*

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY.

NAMES OF COLLIERY.	Do the parties having charge know their duties in case of death or serious accident?	Is the mining boss a competent and practical man?	Has the mining boss an assistant or first boss?	Is the mine examined every morning before persons are allowed to enter it to work?	Is the mine examined every evening to see that the main doors are all closed?	Are there attendants at all main doors?	Are the doors hung on main roads so as to close of their own account?	Are there double doors on main traveled roads?	Is there an extra door in case of accident to any of the other doors?	Is there any noxious or inflammable gas evolved in the mines?	Are you working towards where there is any standing water or gas?	Are you familiar with the mine law of 1870 and its supplements?	Have you established a code of mine rules for the better protection of life and property?	Have you got a second opening yet?
Diamand, No. 2, Shaft G,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	Yes,	No,	No,	No,	No,	Yes,	Yes,	Yes.
Diamond, No. 2, Slope G,	"	"	"	"	"	"	"	Yes,	Yes,	Yes,		"	"	"
Diamond, Tripp, Slope E,	"	"	No,	No,	No,	"	"	No,	No,	No,		"	"	"
Hampton Shaft,	"	"	Yes,	Yes,	Yes,	"	"	Yes,	Yes,	Yes,		"	"	"
Bellevue Shaft,	"	"	"	"	"	"	"	"	"	"		"	"	"
Bellevue Slope,	"	"	"	"	"	"	"	"	"	"		"	"	"
Scranton Coal Company Slope,	"	"	"	"	"	"	"	"	"	"		"	"	"
Oxford Shaft,	"	"	"	"	"	"	"	"	"	"		"	"	"
Taylor Shaft,	"	"	"	"	"	"	"	"	"	"		"	"	"
Taylor Drift,	"	"	No,	No,	No,	"	"	No,	No,	No,		"	"	"
Dodge Shaft,	"	"	Yes,	Yes,	Yes,	"	"	Yes,	Yes,	Yes,		"	"	"
Continental Shaft,	"	"	"	"	"	"	"	"	"	"		"	"	"
Hyde Park Shaft,	"	"	"	"	"	"	"	"	"	"		"	"	"
Central Shaft,	"	"	"	"	"	"	"	"	"	"		"	"	"
Archbald Shaft,	"	"	"	"	"	"	"	"	"	"		"	"	"
Cayuga Shaft,	"	"	No,	No,	No,	"	"	No,	No,	No,		"	"	"
Brisbin Shaft,	"	"	Yes,	Yes,	Yes,	"	"	Yes,	Yes,	Yes,		"	"	"
Sloan Shaft,	"	"	"	"	"	"	"	"	"	"		"	"	"
Pyne Shaft,	"	"	No,	No,	No,	"	"	No.	No,	No,		"	"	"
Jermyn, No. 3, Shaft,	"	"	Yes,	Yes,	Yes,	"	"	Yes,	Yes,	Yes,		"	"	"

DELAWARE AND HUDSON CANAL COMPANY.

Racket Brook,												Yes,	Yes,	Yes.
Coal Brook,	Yes,	Yes,	No,	No,	No,	Yes,	Yes,	Yes,		No,		"	"	"
No. 1 Shaft,	"	"	"	"	"	"	"	"		"		"	"	"
No. 3, Shaft,	"	"	"	"	"	"	"	"		"		"	"	"
Powderley Slope,	"	"	"	"	"	"	"	"		"		"	"	"

| | | |

TABLE No. 8.—*Machinery and steam-power used at each colliery in the Eastern District of Luzerne and Carbon counties, now including all of Lackawanna and a portion of Wayne and Susquehanna counties, Pennsylvania, for year ending 31st day of December, A. D. 1883.*

NAMES OF COLLIERIES.	Number of boilers.	DIMENSIONS. Length in feet.	DIMENSIONS. Diameter in inches.	Pressure per square inch.	Steam-gauge or safety valve.	Date of last examination.	Condition when last examined.	Number of main rolls.	Number of pony rolls.	Number of main screens.	Number of pony screens.
Everhart,	5	30	34	70	Both,	January 12, 1883,	Good,	2	2	1	1
Eagle Shaft,	3	36	30	70	Both,	December 20, 1883,	Good,	2	2	1	2
	2	16	48								
Tompkins Shaft,	6	30	30	60	Both,	December 8, 1883,	Safe,	1	1	1	2
Fairmount Shaft,	4	22	34	70	Both,	October 21, 1883,	Good,	1	1	1	2
Beaver Slope,	2	34	30	40	Both,	August 11, 1883,	Good,			1	
Twin Shaft,	10	30	30	60	Both,	July 6, 1883,	Good,	1	2	1	2
Butler Shaft,	3	39	30	60	Both,	July 2, 1883,	Good,	1	1	2	3
	4	30	30								
Mosier Shaft,	6	35	30	70	Both,	August 18, 1883,	Good,	1	1	1	4
Heidelberg Shaft,	9	30	36	60	Both,	July, 1883,	Good,	4	2		
Locomotive Vulcan,		Flue.		110	Steam guage,	July, 1883,	Good,				
Ontario Breaker,	8	30	30	60	Both,	July, 1883,	Good,				
Phœnix Shaft,	7	36	34	60	Both,	December 29, 1883,	Good,	2	2	1	3
Columbia Tunnel,	2	31	30	40	Both,	Idle since May 15, 1883,				1	
Stetler Shaft,	12	40	34	75	Both,	December 20, 1883,	Good,	2	2	2	2
Florence Shaft,	6	34	34	70	Both,	December 29, 1883,	Good,	2	2	4	4
Hillside Shaft,	8	30	30	75	Both,	July 23, 1883,	Good,	1	1	1	1
Hillside Air Shaft,	4	30	30	75	Both,	July 23, 1883,	Good,				
Spring Brook,	6	30	30	75	Both,	July 14, 1883,	Good,	1	1	3	2
	3	36	34								
Dunn Shaft,	6	36	36	70	Both,	New,	Good,	1	1	4	1
Sibley (Anthracite) Shaft,	12	30	30	55	Both,	December 24, 1883,	Good,	2	2	6	3
Greenwood Mines Slope,	6	30	30	80	Both,	December 22, 1883,	Good,	1	1	4	1
Greenwood Mines Shaft,	6	36	34	70	Both,	December 22, 1883,	Good,				
Phinney Breaker Shaft,	4	30	30	65	Both,	December 22, 1883,	Good,				
National Mines Shaft,	4	32	32	70	Both,	August, 1883,	Good,	2	2	4	2
National Slope and Breaker,	4	32	32	65	Both,	August, 1883,	Good,				
Meadow Brook Shaft,	4	32	32	65	Both,	August, 1883,	Good,				
	4	36	30								

Meadow Brook In Mines,	2	36	30	65	Both,	August, 1883,	Good,				
	1	32	32								
Meadow Brook Breaker,	3	32	32	60	Both,	August, 1883,	Good,	2	2	4	2
Bridge Slope,	5	30	30	75	Both,	September 23 and 30, 1883,	Good,	2	2	2	2
	3	30	34								
	2	32	34								
	1	20	49								
Mount Pleasant Slope,	8	36	30	80	Both,	September 8, 1883,	Good,	2	2	6	2
Mount Pleasant Air Shaft,	2	30	30	80	Both,	September 8, 1883,	Good.				
	2	15	43								
Caponse Shaft,	15	30	36	70	Both,	October 1, 1883,	Good,	2	2	2	2
Pine Brook Shaft,	6	30	36	70	Both,	October 1, 1883,	Good,			1	1
	3	24	36								
Fair Lawn Slope,	4	30	30	75	Both,	September, 1883,	Good.				
Fair Lawn Slope,	2	Locom	otive.	90	Both,	September, 1883,	Good,	1		2	1
Green Ridge Slope,	12	40	34	75	Both,	December, 1883,	Good,	2	2	2	2
Lucas Shaft,	6	40	34	80	Both,	November 18, 1883,	Good,	1	1	4	2
Pancoast Shaft and Slope,	3	22	30	70	Both,	October 21, 1883,	Good.				
	3	30	30								
	3	30	28								
Pancoast Breaker,	3	36	30	60	Both,	October 21, 1883,	Good,	1	1	2	2
	3	36	32								
Jermyn No. 4,	18	36	34	80	Both,	December 24, 1883,	Good,	2	2	2	4
Lackawanna Coal Co., (New,)	9	36	34	75	Both,	December, 1883,	Good,	2	2	2	2
Filler Shaft,	6	30	30	60	Both,	July 14, 1883,	Good,	1	1	2	3
Filers Slope,	6	30	30	70	Both,	July 10, 1883,	Good,	2	2	4	3
Filers Fan,	3	30	30	70	Both,	July 10, 1883,	Good.				
Pierce Coal Co., Breaker,	3	30	30	80	Both,	August 12, 1883,	Good,	2	4	3	3
Pierce Coal Co., Mine,	3	30	30	80	Both,	August 12, 1883,	Good.				
Eaton Mine Breaker,	3	40	34	60	Both,	December, 1883,	Good,	2		2	2
Eaton Mine Slope,	3	34	34	60	Both,	December, 1883,	Good.				
Eaton Mine Shaft,	3	40	34	70	Both,	December, 1883,	Good.				
Erie Shaft,	15	30	34	100	Both,	December 15, 1883,	Good,	1	1	4	2
	3	36	34	70							
Keystone Tunnel,	2	30	34	60	Both,	December 15, 1883,	Good,	1		1	1
Forest City Shaft,	3	36	34	80	Both,	December 10, 1883,	Good.				
Forest City Breaker,	3	36	34	80	Both,	December 10, 1883,	Good,	1		1	2
Belmont Drifts,	3	30	30	60	Both,	Examined but not reported since May 19th.	Good,	1	1	1	1
Totals,	337	10,923									

PENNSYLVANIA COAL COMPANY.

No. 8 Breaker, Shaft No. 1,	5	36	30	75	Both,	December 20, 1883,	Good,	1		2	2
No. 8 Breaker, Shaft No. 8,	5	36	34	60	"	December 22, 1883,	Good,				
No. 8 Breaker, Slope No. 6,	Takes	steam	from	No. 8	Shaft.						
No. 4 Shaft, 14-foot vein, Marcy vein,	7	36	30	75	Both,	December 24, 1883,	Good.				

TABLE No. 8.—*Continued.*

PENNSYLVANIA COAL COMPANY.—*Continued.*

NAMES OF COLLIERIES.	Number of boilers.	Pressure per square inch.	DIMENSIONS. Length in feet.	DIMENSIONS. Diameter in inches.	Steam-gauge or safety valve.	Date of last examination.	Condition when last examined.	Number of main rolls.	Number of pony rolls.	Number of main screens.	Number of pony screens.
No. 6 Breaker, Shaft No. 5,	3	36	30	75	Both,	December 22, 1883,	Good,	1		2	3
No. 6 Breaker, Shaft No. 6,	9	36	30	80	Both,	December 21 and 24, 1883,	Good,				
No. 6 Breaker, Shaft No. 11,	3	36	30	75	Both,	December 22, 1883,	Good,				
No. 7 Shaft,	7	36	30	75	Both,	December 20 and 24, 1883,	Good.				
No. 10 Breaker, Shaft No. 9,	3	36	30	75	Both,	December 21, 1883,	Good,	1	2	4	16
No. 10 Breaker, " 10, 7-foot vein,	6	36	30	75	Both,	December 20, 1883,	Good,				
No. 10 Breaker, " 10, 14-foot "											
No. 10 Breaker, " 10, Marcy "											
No. 10 Breaker, " 10, " "											
No. 10 Breaker, " 10, " "	6	36	30	75	Both,	December 22, 1883,	Good,				
No. 10 Breaker, " 10, " "											
No. 10 Breaker, " 10, " "											
Central Breaker, Shaft No. 13,	10	36	30	80	Both,	December 22, 1883,	Good.				
Central Breaker, Shaft No. 12,	6	36	30	75	Both,	December 20 and 24, 1883,	Good,	1		4	12
Central Breaker, Law Shaft,	11	36	30	75	Both,	December 20, 1883,	Good.				
Slope No. 2,	6	46	30	80	Both,	December 26, 1883,	Good.				
Slope No. 4,	8	20	30	75	Both,	December 20, 1883,	Good.				
		36									
Tunnel No. 1,	3	36	30	75	Both,	December 21, 1883,	Good.				
Stark Shaft and Breaker,	5	36	30	90	Both,	December 21, 1883,	Good,	1		2	2
Barnum Breaker, Shaft No. 1, 7-ft. vein,	10	36	30	75	Both,	December 21, 1883,	Good,	1	2	4	18
Barnum Breaker, " 1, 14-ft. "											
Barnum Breaker, " 2, 7-ft. "											
Barnum Breaker, " 2, 14-ft. "	6	36	30	75	Both,	December 22, 1883,	Good.				
New Shaft, Lackawanna,	P 2	16	48	65	Both,	December 23, 1883,	Good.				
Carbon Hill,	6	28	30	75	Both,	December 21, 1883,	Good.				
New Shaft, Cooper Farm,	P 2	16	36	75	Both,	December 23, 1883,	Good.				
New Shaft, Cooper Farm,	T 2	15	54								
Eagle Shaft,	3	36	34	65	Both,	December 26, 1883,	Good,	1	1	2	2
No. 2 Breaker,	5	36	30	75	Both,	December, 1883,	Good,	1		2	4
No. 2 Shaft,	3	36	30	75							

No. 3 Shaft,	3	36	30	75	Both,	January 5, 1884,	Good.					
No. 2 Shaft, Dunmore,	3	36	30	80	Ashcroft, Nov. 30,	November 4, 1883,	Good.					
Dunmore Breaker,	3	36	30	80	Ashcroft, Nov. 30,	November 4, 1883,	Good,	1	1	2	4	
Dunmore Screens,	3	36	30	80	Ashcroft, Nov. 30,	November 4, 1883,	Good,			4	2	
No. 3 Shaft, Gypsey Grove,	7	36	30	80	Ashcroft, Dec. 1,	November 18 and 25, 1883,	Good,			2	4	
No. 4 Shaft, Gypsey Grove,	3	36	30	80	A. Carr, Dec. 1,	November 25, 1883,	Good.					
No. 2 Breaker, Pittston,	5	36	30	80	Ashcroft, Nov. 4,	November 4, 1883,	Good.					
No. 5 Shaft, Dunmore,	5	36	30	80	Ashcroft, Sept. 27,	September 27, 1883,	Good.					
Totals,	173	6,062										

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY.

Diamond No. 2 Shaft,	10	40	34	75	Boston,	September 21, 1883,	Good,	2	2	8	2	
Diamond Breaker,	4	26	30	80	Boston,	November 12, 1883,	Good.					
No. 2 Slope,	6	38	34	80	Utica,	November 2, 1883,	Good,	2	2	8	2	
No. 2 Slope,	4	36	34	80	Utica,	November 2, 1883,	Good.					
Tripp Slope,	4	30	30	65	Ashcroft,	December 1, 1883,	Good.					
Tripp Slope,	3	40	34	65	Ashcroft,	December 1, 1883,	Good.					
Diamond Air Shaft,	9	30	34	85	Utica,	November 13, 1883,	Good.					
Diamond Air Shaft,	3	40	34	85	Utica,	November 13, 1883,	Good.					
Hampton Shaft,	13	36	34	8	Boston,	November 12, 1883,	Good,	2	2	4	2	
Hampton Air Shaft,	3	Loco.	boilers.	65	American,	November 12, 1883,	Good.					
Bellevue Shaft,	12	36	34	85	Ashcroft,	July 24, 1883,	Good,	4	2	4	6	
Bellevue Slope,	12	38	34	85	Ashcroft,	July 24, 1883,	Good.					
Scranton,	18	32	34	75	Utica,	September 1, 1883,	Good,	2	2	2	2	
Scranton,	4	30	34	75	Utica,	September 1, 1883,	Good.					
Continental,	9	40	34	75	Boston,	October 16, 1883,	Good,	2	2	2	2	
Continental,	1	Locom	otive.	75	Boston,	October 16, 1883,	Good.					
Oxford,	9	40	34	70	American,	November 13, 1883,	Good,	2	2	4	6	
Taylor,	12	30	34	75	Boston,	August 1, 1883,	Good,	2	2	5	5	
Taylor,	4	40	34	75	Boston,	August 1, 1883,	Good.					
Dodge,	9	36	34	80	Boston,	December 1, 1883,	Good,	2	2	2	2	
Dodge,	6	30	34	80	Boston,	December 1, 1883,	Good.					
Hyde Park,	6	36	34	75	American,	July 8, 1883,	Good,	2	2	4	2	
Hyde Park,	3	40	34	75	American,	July 8, 1883,	Good.					
Central,	12	30	34	85	Cleveland,	December 11, 1883,	Good,	2	2	2	2	
Central,	4	40	34	85	Cleveland,	August 1, 1883,	Good.					
Central Air Shaft, Wash. street,	6	36	34	75	American,	July 14, 1883,	Good.					
Archbald Shaft, Wash. street,	6	30	34	85	Utica,	August 1, 1883,	Good,	2	2	4	6	
Archbald,	4	38	34	85	Utica,	August 1, 1883,	Good.					
Cayuga,	12	30	34	80	Ashcroft,	Oct. 13 and Nov. 12, 1883,	Good,	2	2	2	2	
Sloan,	12	30	34	85	Utica,	September 1, 1883,	Good,	2	2	4	2	
Brisbin,	12	30	34	80	Boston,	November 5, 1883,	Good,	2	2	6	2	
Pyne,	12	36	34	85	Boston,	December 18, 1883,	Good,	4	2	6	2	
Jermyn No. 3,	18	36	34	85	Utica,	October 21, 1883,	Good,	2	2	6	6	
Stowe,	6	40	34	85	Utica,	August 8, 1883,	Good.					
Totals,	268	9,106										

TABLE No. 8.—*Continued.*

DELAWARE AND HUDSON CANAL COMPANY.

NAMES OF COLLIERIES.	Number of boilers.	DIMENSIONS. Length in feet.	DIMENSIONS. Diameter in inches.	Pressure per square inch.	Steam-gauge or safety valve.	Date of last examination.	Condition when last examined.	Number of main rolls.	Number of pony rolls.	Number of main screens.	Number of pony screens.
Rackett Brook,	5	36	34	75	Steam-gauge,	November 3, 1883,	Good,	1	1	4	2
Coal Brook,	7	36	34	60	Steam-gauge,	November 3, 1883,	Good,	1	2	6	8
No. 3 Shaft, Carbondale,	9	36	34	60	Steam-gauge,	November 13, 1883,	Good.				
No. 1 Shaft, Carbondale,	7	36	34	60	Steam-gauge,	November 9, 1883,	Good.				
Powderly Slope,	9	36	34	75	Steam-gauge,	November 14, 1883,	Good.				
No. 1 Jermyn,	17	36	34	60	Steam-gauge,	November 21, 1883,	Good,	1	2	2	4
No. 2 Jermyn,	4	36	34	60	Steam-gauge,	November 10, 1883,	Good,	1	1	1	2
White Oak,	9	36	34	60	Steam-gauge,	November 10, 1883,	Good,	1	2	2	4
Grassy Island,	16	36	34	80	Steam-gauge,	November 11, 1883,	Good,	1	1	4	2
No. 2 Olyphant,	9	36	34	80	Steam-gauge.	November 11, 1883,	Good,	1		2	2
Eddy Creek,	9	36	34	80	Steam-gauge,	November 11, 1883,	Good,	1	1	4	4
Marvine Shaft,	15	36	34	80	Steam-gauge,	October 28, 1883,	Good,	1	1	4	2
Leggett's Creek,	14	36	34	80	Steam-gauge,	October 28, 1883,	Good,	1	1	3	2
Von Storch Slope,	26	36	34	80	Steam-gauge,	October 7, 1883,	Good,	1	2	8	4
No. 3 Jermyn,	18	36	34	80	Steam-gauge,	May 12, 1883,	Good,	1	1	4	4
Totals,	174	6,264									

TABLE No. 8—*Continued.*

NAMES OF COLLIERIES.	HOISTING ENGINES.		BREAKER ENGINES.		FAN ENGINES.		PUMPING ENGINES.		DONKEY PUMP ENGINES.		HOISTING ENGINES IN MINES.		Total number of engines.	Total horse-power.
	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.		
Everhart,	2	40	1	60			1	40	2	25			6	165
Eagle Shaft,	1	40	1	35	1	21			3	40	1	25	7	160
Tompkins Shaft,	2	50	1	20	1	15	1	30	1	30	1	25	7	170
Fairmount Shaft,	1	40	1	16	1	10					1	6	4	72
Beaver Slopes,	1	20											1	20
Twin Shaft,	1	50	1	30	1	35			4	110	1	30	8	255
Butler Shaft,	1	40	1	40									2	80
Mosier Shaft,	1	70	1	50	1	30			2	25	1	30	6	205
Heidelberg Shaft,	4	500							3	150			7	650
Ontario Breaker,	2	100	1	50									3	150
Phœnix Shaft,	1	90	1	30	3	56			3	84			8	260
Columbia Tunnel,			1	50									1	50
Stetler Shaft,	2	300	1	80	1	35			3	75	2	40	9	530
Florence Shaft,	2	90	1	45	1	40			2	30			6	205
Hillside Shaft,	2	110	1	35	1	25			5	24	1	25	10	219
Spring Brook,	8	212	1	25	1	25			3	17	1	20	14	299
Dunn Shaft,	2	90	1	45			1	40	1	5			5	180
Sibley (Anthracite) Shaft,	2	80	1	40	2	40			4	70			9	230
Greenwood Mines Slope,	2	80					3	68					5	148
Greenwood Mines Shaft,	2	120			1	40	4	70					7	230
Phinney Breaker Shaft,			1	60									1	60
National Mines Shaft,	1	154			1	40			2	40			4	234
National Slope and Breaker,	1	52	1	45					2	25			4	122
Meadow Brook Shaft,	1	100			1	26							2	126
Meadow Brook In Mines,									3	105	1	52	3	157
Meadow Brook Breaker,			1	76									1	76
Bridge Slope,	3	90	1	30	2	30			4	40	3	30	13	220
Mount Pleasant Slope,	2	100	1	40	1	25			4	60			8	225
Capouse Shaft,	4	325	1	40	2	80	1	135	2	40			10	620
Pine Brook Shaft,	2	70	1	45	1	60	1	70	2	60			7	305
Fair Lawn Slope,	1	35											1	35
Fair Lawn Slope,	1	25	1	35	1	25			1	20	1	25	5	130

TABLE No. 8.—*Continued.*

NAMES OF COLLIERIES.	HOISTING ENGINES.		BREAKER ENGINES.		FAN ENGINES.		PUMPING ENGINES.		DONKEY PUMP ENGINES.		HOISTING ENGINES IN MINES.		Total number of engines.	Total horse-power.
	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.		
Green Ridge Slope,	2	120	1	60	1	25	....	....	2	75	1	25	7	305
Lucas Shaft,	2	300	1	80	1	80	....	....	2	40	....	....	6	500
Pancoast Shaft and Slope,	1	70	....	....	1	35	....	....	2	40	....	....	4	145
Pancoast Breaker,	....	....	1	70	....	....	....	....	....	....	....	....	1	70
Jermyn No. 4,	4	360 / 250	1	100	1	100	....	....	4	160	4	100	14	1,070
Laekawanna Coal Co., (new,)	4	250	1	60	1	60	....	....	2	65	1	40	9	475
Filer Shaft,	2	65	1	60	1	60	....	....	3	65	....	....	7	250
Filer's Slope,	2	80	1	60	....	....	....	....	4	60	....	....	7	200
Filer's Fan,	....	....	....	....	1	60	....	....	....	....	....	....	1	60
Pierce Coal Co., Breaker,	2	80	1	40	....	....	....	....	....	....	....	....	3	120
Pierce Coal Co., Mine,	....	....	....	....	1	20	....	....	1	5	1	30	3	55
Eaton Mine Breaker,	1	25	1	25	....	....	....	....	....	....	....	....	2	50
Eaton Mine Slope,	1	25	....	....	2	40	....	....	....	....	....	....	3	65
Eaton Mine Shaft,	....	....	....	....	....	....	....	....	1	15	2	50	3	65
Erie Shaft,	2	50	1	35	1	30	1	60	4	33	2	25	11	233
Keystone Tunnel,	....	....	1	20	....	....	....	....	....	....	....	....	1	20
Forest City Shaft,	2	80	....	....	1	25	....	....	2	15	....	....	5	140
Forest City Breaker,	....	....	1	35	....	....	....	....	....	....	....	....	1	35
Belmont Drifts,	....	....	1	40	1	25	....	....	....	....	....	....	2	65
Totals,	80	4,828	37	1,707	37	1,217	13	513	83	1,648	25	578	274	10,491
PENNSYLVANIA COAL COMPANY.														
	2	60	....	....	1	20	....	....	....	....	....	....	3	80
No. 8 Breaker,	1	40	1	25	....	....	....	....	....	....	....	....	2	65
	1	30	....	....	....	....	....	....	....	....	....	....	1	30
No. 4 Shaft,	1	40	....	....	1	20	1	40	2	30	2	40	6	170
	1	40	....	....	1	20	....	....	1	10	....	....	3	70
No. 6 Breaker,	1	40	1	30	....	....	....	....	1	60	1	20	4	150

	1	40	. . . .	. . . .	1	20	. . . .	. . . .	1	10	. . . .	. . . .	3	70
No. 7 Shaft,	1	40	. . . .	. . . .	1	20	1	120	2	80	2	40	7	300
	1	40	. . . .	. . . .	1	20	. . . .	. . . .	1	60	. . . .	. . . .	3	120
No. 10 Breaker,	3	60	1	40	. . .	. . .	1	30	. . . .	. . . .	. . . .	. . . .	5	130
	2	60	. . . .	. . . .	1	20	1	40	3	60	. . . .	. . . .	7	180
	1	40	. . . .	. . . .	1	20	2	80	. . . .	. . . .	2	20	6	260
Central Breaker,	1	40	1	40	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	2	20	4	100
	1	40	. . . .	. . . .	1	20	1	40	3	130	2	20	8	250
Slope No. 2,	1	40	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	3	190	. . .	. . . .	4	230
Slope No. 4,	5	80	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	2	60	. . . .	. . . .	7	140
Tunnel No. 1,	2	40	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	3	60	. . . .	. . . .	5	100
Stark Shaft and Breaker,	1	40	1	30	. . . .	. . . .	. . . .	. . . .	1	10	4	50	7	130
	1	40	. . . .	. . . .	1	25	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	2	65
Barnum Breaker,	1	40	1	40	. . . .	. . . .	1	40	1	10	2	20	6	150
New Shaft, Lackawanna,	1	40	. . . .	. . . .	1	25	. . . .	. . . .	1	10	2	20	5	95
Carbon Hill,	2	40	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	2	30	. . .	. . . .	4	70
New Shaft, Cooper Farm,	2	70	. . . .	. . . .	. . . .	. . . .	1	45	1	30	. . .	. . . .	4	145
Eagle Shaft,	4	60	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	1	10	. . . .	. . . .	5	70
No. 2 Breaker,	1	40	1	30	1	20	. . . .	. . . .	3	45	1	25	7	160
No. 2 Shaft,	. . . .	1	40	. . . .	. . .	. . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	1	40
No. 3 Shaft,	. . . .	. . .	. . .	. . . .	. . . .	. . . .	. . . .	. . . .	1	25	. . . .	. . . .	1	25
							1	40	. . . .	. . .	. . . .	. . . .	1	40
No. 2 Shaft, Dunmore,	1	90	Fame	Eng.	Pump.	. . . .	1	90	1	9	1	40	3	139
Dunmore Breaker,	. . . .	. . . .	1	30	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	1	30
Dunmore Screens,	. . . .	. . . .	2	40	. . . .	. . . .	. . . .	. . . .	. . .	. . . .	. . . .	. . . .	2	113
				90										
No. 3 Shaft, Gipsey Grove,	1	70	1	70	. . . .	. . . .	2	90	1	9	1	40	6	349
								70						
No. 4 Shaft, Gipsey Grove,	1	70	. . . .	. .	1	35	. . . .	. . . .	. . . .	. . . .	. . .	. . .	2	105
No. 2 Breaker, Pittston,	. . . .	. . . .	1	125	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	1	125
No. 5 Shaft, Dunmore,	2	140	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	1	9	. . . .	. . . .	2	140
Totals,	43	1,510	13	630	13	285	13	725	36	947	22	355	138	6,345

DELAWARE, LACKAWANNA, AND WESTERN RAILROAD COMPANY.

Diamond No. 2 Shaft,	4	160	. .	. . .	. . . .	. . . .	1	90	5	210	1	30	11	490
Diamond Breaker,	. . . .	. . . .	1	60	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	1	60
No. 2 Slope,	1	60	1	60	. . . .	. . . .	. . . .	. .	3	103	1	30	6	253
Tripp Slope,	2	50	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	3	190	. . . .	. . . .	5	240
Diamond Air Shaft,	. . . .	. . . .	. . . .	. . . .	1	40	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	1	40
Hampton Shaft,	2	80	1	60	. . . .	. . . .	1	90	2	60	1	30	7	320
Hampton Air Shaft,	. . .	. . .	. . .	. . .	1	40	. . .	. . .	. . .	. . .	. . .	. . .	1	40
Bellevue Shaft,	4	250	1	60	1	60	1	90	5	60	2	90	14	610
Bellevue Slope,	2	120	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	2	35	1	50	5	205
Scranton,	2	120	1	60	1	40	. . . .	. . . .	3	50	. . . .	. . . .	7	270
Continental,	2	90	1	60	1	40	1	90	5	120	. . . .	. . . .	10	400
Oxford,	4	180	1	60	2	120	. . . .	. . . .	2	50	. . . .	. . . .	9	410
Taylor,	3	160	1	60	2	100	1	90	2	45	1	30	10	485
Dodge,	2	90	1	60	. . . .	. . . .	1	90	1	30	. . . .	. . . .	5	270
Hyde Park,	2	90	1	60	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	3	150

TABLE No. 8.—DELAWARE, LACKAWANNA, AND WESTERN RAILROAD COMPANY.—*Continued.*

NAMES OF COLLIERIES.	HOISTING ENGINES.		BREAKER ENGINES.		FAN ENGINES.		PUMPING ENGINES.		DONKEY-PUMP ENGINES		HOISTING ENGINES IN MINES.		Total number of engines.	Total horse-power.
	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.		
Central,	2	90	1	60	1	40	2	300	5	130	1	30	12	650
Central,	....	....	....	....	....	....	....	....	4	70	....	....	4	70
Archbald Shaft, Wash. street,	2	90	1	60	1	40	....	....	3	102	....	....	7	292
Cayuga,	2	120	1	60	1	40	2	240	1	20	....	....	7	480
Sloan,	2	120	1	60	1	40	....	....	5	106	....	....	9	326
Brisbin,	2	120	1	60	1	40	....	....	2	120	....	....	6	340
Pyne,	2	300	1	60	1	40	1	150	1	10	1	20	7	580
Jermyn, No. 3,	4	206	1	60	2	85	....	....	5	104	4	50	16	505
Stowe,	1	60	....	....	....	....	....	....	2	30	....	....	3	90
Totals,	47	2,556	17	1,020	17	765	11	1,230	61	1,645	13	360	166	7,576
DELAWARE AND HUDSON CANAL COMPANY.														
Rackett Brook,	....	....	1	77	....	....	....	....	....	....	....	....	1	77
Coal Brook,	1	56	1	77	1	36	....	....	3	32	....	....	6	201
No. 3 Shaft, Carbondale,	2	117	....	....	1	42	2	100	....	....	....	....	5	259
No. 1 Shaft, Carbondale,	....	....	....	....	1	36	1	60	....	....	....	....	2	96
Powderly Slope,	2	117	....	....	2	32	....	....	2	177	....	....	6	326
No. 1, Jermyn,	3	148	1	56	1	59	....	....	7	191	1	33	13	487
No. 2, Jermyn,	2	72	1	36	....	....	....	....	....	....	....	....	3	108
White Oak,	2	200	1	61	1	49	....	....	1	35	....	....	5	345
Grassy Island,	2	72	1	61	2	117	1	77	5	156	2	10	13	493
No. 2 Olyphant,	3	150	1	36	....	....	1	77	3	141	....	....	8	404
Eddy Creek,	2	117	1	61	2	117	....	....	1	6	2	10	8	311
Marvine Shaft,	3	200	1	61	1	49	1	120	2	22	2	10	10	462
Leggett's Creek,	3	200	1	61	1	49	1	77	1	10	2	10	9	407
Von Storch Slope,	5	296	1	61	2	120	....	....	3	150	2	10	13	637
No. 3 Jermyn,	4	250	1	61	2	82	....	....	4	90	4	20	15	503
Totals,	34	1,995	12	709	17	788	7	511	32	1,010	15	103	117	5,116

TABLE No. 8—*Continued.*

RECAPITULATION.

NAMES OF COLLIERIES.	No. of boilers.	Length in feet.	HOISTING ENGINES.		BREAKER ENGINES.		FAN ENGINES.		PUMPING ENGINES.		DONKEY-PUMP ENGINES.		HOISTING ENGINES IN MINES.		Total number of engines.	Total horse-power.
			Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.		
Miscellaneous Coal Companies, .	337	10,923	80	4,828	37	1,707	37	1,217	13	513	83	1,648	25	578	275	10,491
Pennsylvania Coal Company,	173	6,062	43	1,510	13	630	13	285	13	725	36	947	22	355	140	6,345
Delaware, Lackawanna and Western Railroad Company, . . .	268	9,106	47	2,556	17	1,020	17	765	11	1,230	61	1,645	13	360	166	7,576
Delaware and Hudson Canal Company, ...	174	6,264	34	1,995	12	709	17	788	7	511	32	1,010	15	103	117	5,116
Totals, ...	952	32,355	204	10,899	79	4,066	84	3,055	44	2,979	212	5,250	75	1,396	698	29,528

NOTE.—There has been an increase of 68 boilers, and 80 steam engines, increasing the horse-power 4,337 over 1882.
In addition to the above, there are working at the collieries of the district sixteen (16) mine locomotives.

LUZERNE AND CARBON COUNTIES.

SOUTHERN DISTRICT.

To his Excellency Robert E. Pattison,
Governor of the Comwonwealth of Pennsylvania:

Sir: In compliance with the twenty-second section of the act of Assembly approved March 3, 1870, I have the honor of presenting for your perusal my third annual report of the Southern District of Luzerne and Carbon counties, for the year ending December 31, 1883.

The total production of this district, including coal sold for home consumption and the coal used in generating steam in and about the coal mines, was 5,666,767 tons, being an increase over the production of 1882 of 306,270 tons.

The total number of accidents in this district during the past year was two hundred and eleven, an increase of thirty-five over the number of the previous year.

Of the above number of accidents thirty-eight were fatal—or two less than in the year 1882—the unfortunate victims leaving twenty-two widows and seventy-eight orphans.

Of the thirty-eight fatal accidents thirty, or nearly seventy-nine per cent., happened inside of the mines, and eight, or about twenty-one per cent., on the surface.

Of the thirty fatal accidents within the mines, eighteen, or sixty per cent., were caused by falls of coal and roof, and eleven, or nearly thirty-seven per cent., by mine cars; therefore, it can be seen that to falls and mine cars ninety-seven per cent of the fatal accidents that occurred inside of the mines must be charged.

For each life lost in and about the mines 149,125 tons of coal were produced, against a production for the year 1882 of 134,012 tons, showing an increase of 15,113 tons produced per life lost.

On the whole I must commend the management of the mines, and also the vigilance which inside foremen in general have exercised over the em-

ployés under their charge. To this vigilance I attribute the decrease in the number of fatal accidents, and the increase of the ratio of the number employed per life lost over preceding years.

I have again endeavored to call the attention of the generous public to the great need of having a hospital for this district, and of the good that would result from the establishment of a beneficial fund for the injured, and also for the widows and orphans of the men that are killed daily in and around the mines.

I have also prepared several tables that I hope may prove interesting and of some value, especially to all parties interested in coal mining.

Respectfully submitted,

JAMES E. RODERICK,
Inspector of Coal Mines.

HAZLETON, *March 20, 1884.*

Remarks on the Causes of Accidents.

It is very gratifying to me to be able to report that not a single life was lost in this district by explosions of gas, which good result is largely due to the care and vigilance of the fire-bosses. But twenty-six persons were injured by explosions of gas, a few of them being severely burned. In my investigations as to the causes of these accidents, I discovered that, except in a few cases, they resulted either from ignorance or neglect on the part of the parties themselves.

We have in this district, as in all other districts, men who should not be employed inside the mines, especially in such as generate explosive gases, since through ignorance they are unable to provide for themselves, while their neglect often endangers the lives of others. I hope that the time will come when persons of the class I have just mentioned will not be permitted to work in any mine where explosive gases are known to be generated.

Accidents from falls of coal, slate, and roof have not been as numeous as in previous years, a result which I attributed to the care and watchfulness of mine-bosses, and to the miners, who are becoming more careful in propping and in taking down doubtful pieces.

Were it not for the steady influx of new workmen into the mines, the number of accidents from falls and explosions would be largely decreased, the old miners, as a rule, doing their work carefully and effectively. Experience is an excellent teacher, and the truth of this saying is clearly demonstrated in and around the mines. A miner or laborer who has suffered once from any of the numerous accidents likely to occur at his work is rarely a victim a second time, his sufferings having taught him that his occupation, being a dangerous one, requires the utmost vigilance in the prosecution of it.

Accidents from cars have been more numerous than during previous

years, and of these, I am confident, the great majority are due to unpardonable blunders, some of them savoring of criminal negligence on the part of the sufferers. When the law shall have made riding on cars in and around the mines a misdemeanor punishable with fine or imprisonment, these accidents will largely decrease in number.

Three men lost their lives during the year by being drawn into pea coal and dirt pockets. Though they could have saved themselves without any great exertion by the exercise of a little common sense, yet in their dilemma all reason seemed to forsake them and they perished. Each of these men had been instructed how to act in such cases. Whether they understood what was told them or not, I do not know, but I do know they perished where a man of even ordinary intelligence would have rescued himself.

TABLE NO. 1.—*Exhibits the number of deaths in the different classes of employés inside and outside of the mines, and the causes thereof:*

Causes of Deaths Inside of Mines.	Miners.	Miners' laborers.	Drivers and runners.	Helpers, (boys.)	Locomotive engineers.	Carpenters.	Totals.	
By falls of all kinds,	11	4	1	...	...	1	17	
By mine cars,	1	1	4	3	1	...	10	
By blasts through pillars,	1	...	...	...	...	...	1	
By mules,	...	...	2	...	...	...	2	
Total inside,	13	5	7	3	1	1	30	30

Causes of Deaths Outside of Mines.	Laborers.	Slate pickers.	Engineers.	Totals.	
By breaker machinery,	...	1	1	2	
By being smothered in chutes at breakers,	3	...	...	3	
By cars,	1	...	1	2	
Miscellaneous,	...	1	...	1	
Total outside,	4	2	2	8	8
Total inside and outside,					38

TABLE No. 2.—*Gives the total number of each class of employés, the number of deaths in each class of employés, and the ratio of each class employed, per life lost inside and outside of the mines during 1883:*

CLASSES EMPLOYED INSIDE OF THE MINES.	Number of each class.	Number of fatal accident in each class.	Ratio employed per life lost.
Number of miners,	3,063	13	235.62
Number of miners' laborers,	1,847	5	369.4
Number of drivers and runners,	827	7	118.15
Number of helpers or patchers,	277	3	92.33
Number of all other employés,	1,580	2	790
Total inside,	7,594	30	253.13
Classes employed outside the mines:			
Number of engineers,	175	2	87
Number of slate pickers,	2,749	2	1,374
Number of all other employés,	3,080	4	770
Total outside,	6,004		750

By referring to tables Nos. 1 and 2, it can be seen that thirty-eight lives were lost in this district during the year 1883; of that number thirty lost their lives inside of the mines.

The average number of employés inside of the mines was 7,594, making the ratio of persons employed per life lost, 253.13, which is a little better record than was given for the year 1882, when one life was lost for every 207.68 persons employed.

The average number of employés outside of the mines was 6,004; of that number eight lives were lost, or one life lost for every 750.5 employed.

The total number of employés inside and outside of the mines during the year 1883 was 13,598; the number of lives lost was thirty-eight, making the ratio of persons employed per life lost, 357.84, which is a much better showing than for the year 1882, when one life was lost for every 307.45 employed.

Table of Comparison.

YEAR.	Number of employés.	Number of deaths.	Ratio employed per death.	No. killed per 1000 employed.
1881,	11,386	47	242.25	2.42
1882,	12,298	40	307.45	3.07
1883,	13,598	38	357.84	3.57
	*12,427.33	*41.66	*298.25	*2.98

* Average for three years.

Diagram showing the number killed each month during the year 1883.

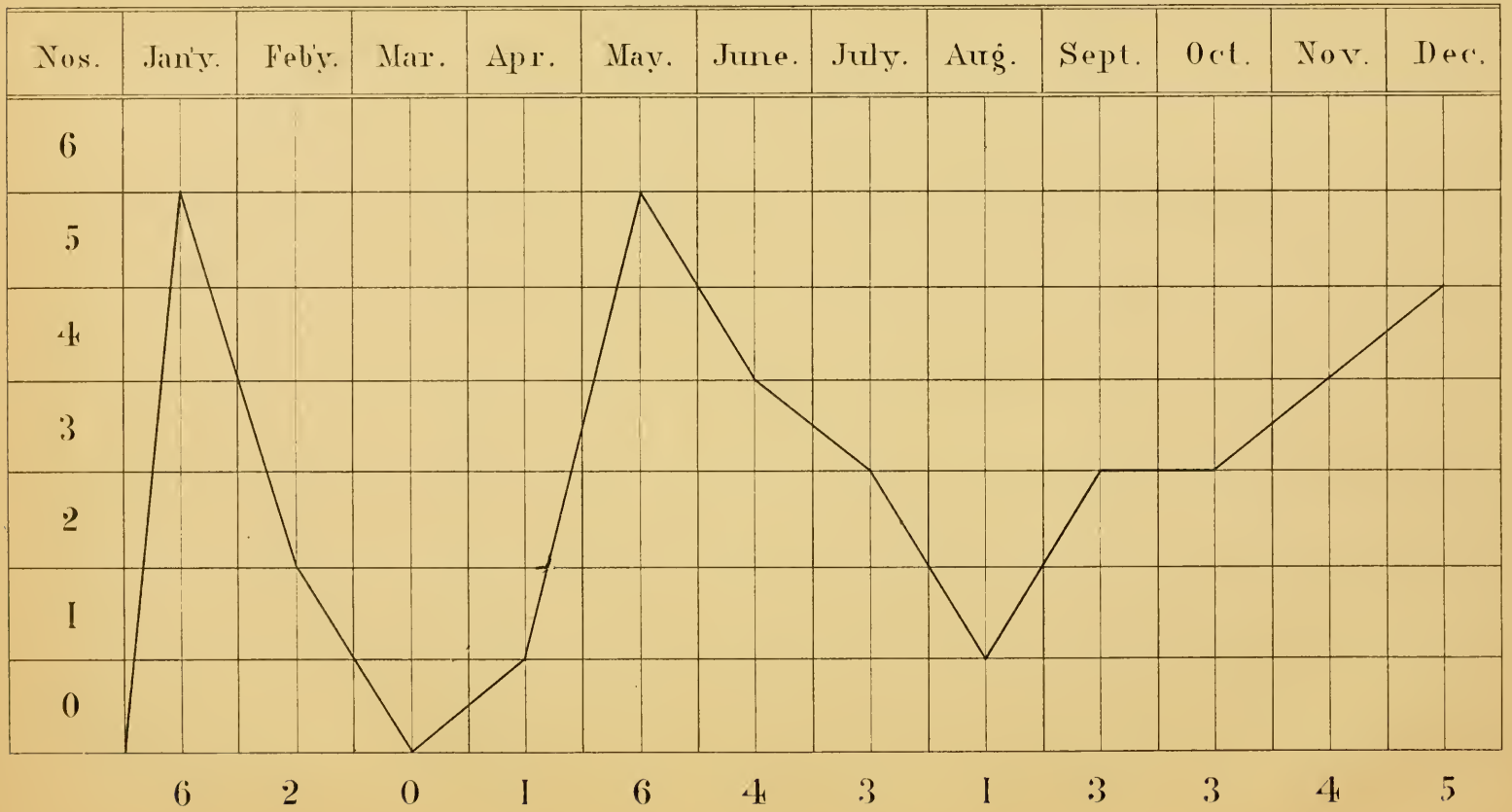


TABLE NO. 3.—*Gives the number of each class of employès, the number of injuries in each class, and the ratio of each class employed per injury inside and outside the mines during 1883:*

Classes of Employees Inside of Mines.	Number of each class.	Number injured in each class.	Ratio employed per injury.
Number of miners employed,	3,063	83	36.90
Number of miners' laborers employed,	1,847	23	80.30
Number of drivers and runners employed,	827	21	39.38
Number of helpers and patchers employed,	277	8	34.62
All other employès,	1,580	14	112.85
Total inside,	7,594	149	50.97
Classes of Employès Outside the Mines:			
Number of slate-pickers,	2,749	4	687.25
All other employés,	3,255	20	162.75
	6,004	24	250.17

By referring to table No. 3, it can be seen that the number of non-fatal accidents inside of the mines during the year 1883 was 149, or one accident for every 50.97 persons employed.

The number of accidents on surface during the same period was twenty-four, making the ratio employed 250.17 for every accident.

The total number of non-fatal accidents during the year inside and outside of the mines was 173, or one accident for every 76.37 persons employed.

By referring to table No. 4 it can be seen that the number of severe injuries during the year 1883 was one hundred and fifty-three, showing that one person was severely injured for every 88.87 employed in and around the mines.

This is an awful record, and speaks volumes for all parties interested.

I have taken the trouble of figuring out the ratios, so every reader can see at a glance the cost of mining anthracite coal in Pennsylvania.

TABLE NO. 4.—*Gives the number of severe accidents, the number of each class, and the causes thereof:*

CAUSES OF ACCIDENTS.	Severe injuries, no bones fractured.	Legs fractured.	Feet fractured.	Collar-bones fractured.	Arms fractured.	Hands fractured.	Molar-bone fractured.	Totals.	
By falls of all kinds,	40	19	3	5	2	5	1	75	
By mine cars,	23	5	. .	2	6	2	. .	38	
By explosion of gas,	22	. .	. .	. .	. .	. .	. .	22	
By premature blasts,	1	. .	. .	. .	. .	. .	. .	1	
By explosion of powder,	5	. .	. .	. .	. .	. .	. .	5	
By blasts through pillars,	3	. .	.	. .	. .	. .	. .	3	
Miscellaneous,	5	2	1	. .	. .	1	. .	9	
Totals,	99	26	4	7	8	8	1	153	153

Beneficial Fund.

In my report of last year I called attention to the necessity existing in the coal region for the establishment of beneficial funds for the aid of the widows and orphans of the men killed in and around the coal mines.

The Lehigh Coal and Navigation Company has already taken an initiatory step in this direction, and their munificient contribution to the fund which they have been instrumental in creating reflects, deserved credit on the philanthropic spirit which actuated their action. The fund of this company, as will be seen by the rules and regulations printed below, is largely maintained by the company itself, the employés paying into it but a small amount compared with the generous donation of the company. The rules for establishing and administering this fund are as follows:

RULES.

This fund shall be created and maintained by the following contributions, to be made monthly:

The Lehigh Coal and Navigation Company will pay into it one cent for every ton of coal produced at its mines. The inside workingmen employed on its property will pay into it one per cent. of their earnings, and the outside workingmen will pay into it one half of one per cent. of their earnings, but no one shall pay more than one dollar in any one month.

All contributing workingmen who may be accidentally injured when actually engaged in the service of the company, shall be entitled to the following benefits, to be paid out of the fund:

In case of accident so received, which shall cause disability lasting more than one week, the person injured shall receive a sum equal to one half the weekly wages of the class of workmen to which he belonged, for each week

of such disability, but no one so injured shall receive from this fund such benefits for a longer period than six months for any one accident.

In case of accident so received, which shall result in death, thirty dollars will be paid for funeral expenses, and a sum equal to one half the weekly wages, as in the case of injury, will be paid to the legal heirs of the deceased for one year from the date of the accident.

These benefits will be paid only on the statement of the proper foreman that the injury was received in the service of the company, and on a certificate from the physician to the fund, in case of accident, that the accident was a disabling one, and in the case of death, that the death resulted from accident, and not from disease. In case of accident, the certificate of disability must be renewed every two weeks.

All moneys which shall be paid into this fund shall be placed in charge of a board of trustees to be appointed, from time to time, by the president of the Lehigh Coal and Navigation Company, and to be chosen by him partly from the officers of the company and partly from the business men of experience and good reputation in or near the mining region. A report of the receipts and expenditures of this fund shall be published by the board of trustees at least once a year. The first board of trustees to be so appointed will be Mr. George Ruddle, of Mauch Chunk; Hon. Michael Cassidy, of Nesquehoning, and Mr. Daniel Shepp, of Tamaqua. They shall receive no remuneration for their services.

The physician to the fund shall be appointed, from time to time, by the president of the Lehigh Coal and Navigation Company from the practicing physicians in the region. The physician to the fund for the present will be Dr. Edward H. Kistler, of Summit Hill. He will make no charge to the contributors for the necessary certificates, but if the contributors desire medical attendance they must themselves pay such physicians as they may select to attend them.

Any workingman not desiring to contribute to this fund nor to share in its benefits, can, after any monthly pay-day, receive from the Lansford office the sum deducted for the fund from his last month's pay, but his name will not again be enrolled among the contributors, nor will he be entitled to any benefit from the fund until after he shall have made another payment.

The fund thus established is believed to be ample to meet all claims arising from accidents to the contributors, and if, as is hoped, there shall be more than is required under this plan, the benefits will be increased as, from time to time, the trustees may think prudent.

The Lehigh Coal and Navigation Company, in making this contribution and establishing this fund, desires to relieve the suffering which accidents cause among its workingmen, and to render unnecessary the collections which make a heavy tax on the benevolent; and, also, to promote the growth of the kindly feeling which now exists between the company and the men engaged in its service.

The operation of this fund will commence January 18th, 1884.

In some respects the provisions of the fund are hardly beneficial enough; as, for instance, "in case of accident which shall result in death, a sum equal to one half the weekly wages will be paid to the legal heirs of the deceased for one year from the date of accident." My objection to this provision is that the time is too short. It needs no stretch of the imagination to picture the distress, the despair, and the poverty of a stricken family when the year above-mentioned shall have expired. Unless the widow has remarried, or the children have found outside protectors, when the support of the fund is withdrawn at the end of the year, one can easily understand their pitiable condition. I am of the opinion that the period during which aid is to be given should be fixed at from eight to ten years from the death of the husband, father, or protector; provided, however, that such aid shall cease in case of marriage of the widow or adoption of the children. Though the mode of operating this fund is open to objections, yet it is a vigorous move in the right direction, and it is to be hoped that the other companies of the coal region will, either separately or collectively, establish a beneficial fund in the near future, with the praiseworthy objects of promoting the good feeling between employé and employer, and of lessening the dire and abject distress and suffering that become the portion of a family when the husband and father has been stricken down at his work in or around the mines.

Hon. Eckley B. Coxe sent me the following letter in reply to an inquiry upon this subject:

J. E. RODERICK, Esq., *Mine Inspector, Hazleton, Pa.:*

DEAR SIR: Our system of providing for persons who are hurt in our employment is as follows:

In case of death we pay for funeral expenses fifty dollars, and three dollars per week to the widow (while unmarried) for one year from the date of death.

We also pay to the widow, in addition, for each child she has under the age of twelve, one dollar per week until the child reaches the age of twelve.

For example, if the unfortunate man left a widow and five small children, she would get eight dollars per week for the first year and five dollars per week afterwards until the oldest child reached the age of twelve and was able to work; then she would get four dollars per week, and so on.

When any one is hurt, if he is a man, he is allowed five dollars a week until he is well enough to go to work on the breaker, (no matter how long.)

A boy gets two dollars and fifty cents per week for the same time.

No allowance is made where the accident is not serious, involving a loss of only a few days' work, less than one week. This is a free-will gift and not a claim that can be enforced by law.

We do not inquire to whose fault the accident is due. It is sufficient that the man was hurt while in the discharge of his duty.

The men do not contribute to the fund. The whole amount is paid by

the company, who reserve the right to decide themselves all questions that may arise.

Hospitals.

The absence of a sufficient number of hospitals in the coal-mining regions of Pennsylvania must be deplored. The importance of having them need not be dwelt upon. The good they accomplish is evident to all. The central mining town that cannot boast of one of these institutions, either within its environs or its near vicinity, is indeed destitute of the best means of treating the numerous injuries sustained by the miners and laborers in their underground employment.

Though Scranton, Wilkes-Barre, and Ashland, recognizing the necessity of having a hospital, have each erected and now sustain one of these excellent infirmaries, Hazleton has been slow to follow the example. That such an institution would be productive of uncalculable benefit, not alone to the miners of Hazleton and vicinity, but also to the citizens of the borough themselves, is plainly evident. In past years, when disease swept over the town, and the borough authorities were at a loss as to where to place the stricken victims of the epidemic, the absence of a hospital was particularly felt and unfavorably commented upon; but when the scourge had run its course and health once more smiled upon the place, the need of a suitable infirmary building seemed to vanish with it, no more to be resurrected from forgetfulness until another visitation of a pestilence or the energetic efforts and cogent arguments of a philanthropist, render the necessity apparent.

If the miners and other employés of the collieries in this district would band together and enlist the support of their employers, the coal operators, and the wealthy public-spirited citizens in this direction, the establishment of a hospital would be but a question of a little time. The press, though it has been derelict to its duty to the public in this regard, would second their efforts, and voice their action to every family in this mining district. Upon the miners devolves the duty of taking the initiatory step in this matter, and when they reflect upon the benefit accruing to them from the erection of such a building, it is to be hoped that they will present their desires to the proper parties at the earliest opportunity, and also endeavor to enlist the sympathy of the members of the Legislature, and thus secure aid from the State in the undertaking.

In connection with this subject, I submit the report of the Drifton hospital, which was built and is sustained by Coxe Bros. & Co. The first patient was admitted September 1, 1882. The report embraces the time intervening between the opening of the hospital and December 31, 1883, a perion of sixteen months.

Number of patients admitted, ...	85
Number of patients discharged, ...	77
Number of patients remaining, December 31, 1883, ...	8
	— 85

Number discharged cured,	63
Number discharged by request,	2
Number discharged improved,	4
Number discharged for misconduct,	1
Number ran away,	2
Number died,	5
Number remaining,	8
Total number of patients,	85

The average number of days each patient remained in the hospital was thirty and one half.

Of the patients discharged cured, one was in the hospital one hundred and ninety-six days; of those remaining, one has been in the hospital two hundred and forty-eight days.

One death occurred for every seventeen patients, but all the deaths occurred within thirty-six hours after the parties were admitted to the hospital.

Of the eighty-five patients admitted to the hospital, seventy were employés of Coxe Bros. & Co., and the remaining fifteen by other companies.

Forty, or nearly one half of the number of patients, were Hungarians, and three fourths of the remainder were of foreign birth, figures which tend to prove that a large majority of mine employés are of foreign birth.

IMPROVEMENTS MADE AT THE SEVERAL COLLIERIES DURING 1883.

The improvements in this district during 1883 were not as extensive as those of the preceding year, but the work of improvement, nevertheless, was carried on at a steady rate.

Improvements made at A. Pardee & Co.'s Collieries.

HAZLETON MINE.—The improvement at this place is particularly noticeable. The capacity of the breaker has been doubled, and a new plane erected near it to a height sufficient to deposit the refuse back of the outcrop of the Mammoth.

No. 8 slope which was sunk through the old workings to a depth of 200 yards has been completed, and thereby a large quantity of coal can be taken from the old Mammoth workings. This slope is a little east of Hazleton mine and the coal will be sent to the same breaker. Four 33″ × 30′ cylinder boilers were put in, and an addition built to the boiler-house. A new carpenter shop and a stable were erected.

CRANBERRY.—A new self-acting plane was completed in the North Wharton, and two additional 33″ × 35′ cylinder boilers put in place.

The 16-foot fan that was at No. 6 has been removed from that place and placed on the South Wharton near West Cranberry engine-house. (This fan was not needed at No. 6, as many workings opened to the surface.)

SUGAR LOAF.—A large Allison steam pump was put in place. The dimen-

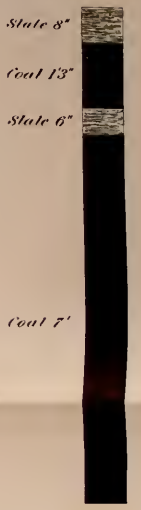
SECTION THROUGH TUNNELS IN NORTHBASIN, DERRINGER, PA.

OPERATED BY COXE BROS. & CO.

(Looking East.)

Scale 1"=200 Ft.

East Gangway in Southbasin.



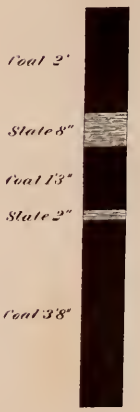
East No.4.

East No.3.

West No.8.

West No.5.

West No.6.



Detailsection of Veins as developed in Gangways.

Detailsections — Scale ½"=1 Ft.

etailsecti

sions of its water and steam cylinders are respectively 14″×72′ and 16″×72′, and its vertical lift 384 feet.

A new plane was opened through rock and faulty coal, and thus a large area of Mammoth coal, before inaccessible on account of a serious roll, has been opened up.

Laurel Hill.—The 20-foot fan was removed from No. 3, and placed on the second opening in No. 7, in which position, being nearer its work and by reason of new and large openings, it is able to ventilate Hazleton mine and No. 7 thoroughly.

Improvements made by Coxe Bros. & Co.

Slope No. 1.—The tunnel started in slope No. 5 during 1882 struck the Wharton, Parlor, and Mammoth at a distance of 346, on a pitch of 83°. The peculiarity of the seams at Lattimer, three miles west, is noticeable here. The three lower seams of coal come together and merge into one seam 38 feet thick with intervening layers of slate in several places, aggregating 13 feet in thickness. An airway was driven to the surface which in time will be used as a slope when it will be extended to the basin. A large bore hole has been drilled to the bottom of No. 5, through which the water will be carried to the surface.

Slope No. 2.—During the past year a large amount of coal has been opened up in the second, third, and fourth lifts of the east and west gangways. Nearly two thousand yards of gangway have been driven. The fifth lift, which is in the basin, was left standing to insure the safety of the gangways above. The main slope is being extended with double tracks to the lifts above mentioned, which extension will be completed early in 1884.

Tomhicken.—The tunnel in slope east of the shaft was continued to the middle and lower seams, which were pierced at ninety-five and one hundred and thirty-five feet respectively. The quality of the coal in the top seam is as good as that west of the shaft, while the coal in the other two seams is continually growing better.

These east slope workings are one hundred and seventy feet above the level of the shaft workings, and the drainage was effected by a drift or gangway driven through loose ground a distance of six hundred and eighty-five feet. The work of driving this gangway or drift was an expensive and tedious job, the more so since a bed of quicksand was met, which followed the operation for more than two thirds of the distance.

The coal from the east slope workings will be taken first through the above-mentioned drift, then over the surface a distance of one third of a mile to the breaker, which will be ready to ship coal about the middle of March, 1884. The breaker here, in my opinion, is the model one of the Anthracite coal region, it lacking none of the improvements necessary to a first class structure.

Derringer Colliery.—The tunnel mentioned in my report of 1882 was continued, and reached the D seam on a pitch of 52° at a point three hundred and fifty-five feet from the starting-place, or B; the E seam was

pierced at four hundred and two feet. The tunnel was extended and, crossing the basin, a regularly-shaped one, at five hundred feet, it pierced the E seam again at six hundred and ninety feet, the D at seven hundred and sixty-five feet, the two splits of the C at eight hundred and nine and nine hundred and twenty-seven feet, and the B at nine hundred and ninety-two feet from the start.

This basin is much more valuable than it was considered to be at first, and as it is a new working a section of the tunnel and the thickness of the several seams of coal cut will be interesting and instructive. A slope has been sunk on the D, two hundred and forty feet from the basin, and from that point tunnels have been started north and south to cut the other seams. In the south basin a tunnel three hundred and twenty-five feet long was driven through disturbed ground and the coal found in good order. This colliery can ship from ten to fifteen thousand tons of coal per month.

GOWEN.—The tunnel mentioned in my last report at No. 3 slope cut the B seam on the north pitch at two hundred and ten feet from the starting-place, and the coal was found in good condition. This seam has a lift of five hundred and ninety-four feet on a pitch of 38°, as proved by the second opening. Gangways which have been opened sixteen hundred and eighteen hundred feet west on the north and south pitch, and which will extend several miles, show this to be a very extensive basin. The east gangway on the north pitch was connected with the old workings, which proved beyond a doubt the overturning of the B seam, a fact which is also demonstrated by the short tunnel connecting Nos. 1 and 3. The developments made at Gowen during 1883 evidence a bright future for that place. A slope was sunk three hundred and eighty-four feet below water level on the D in front of Dam tunnel, which is about two miles east of said No. 3 slope.

Beaver Meadow Collieries—Coxe Bros. & Co.

After several years of idleness, work was begun here in the fall of 1883, with bright prospects ahead. The water has been pumped out of the Wharton slope, and four gangways were started which opened an extensive area of coal. The old No. 8, or Little Valley slope, has been tapped by a short tunnel 73 feet long, which drained it, and through which a large amount of coal can be taken from the old working, and also from an extensive stripping. There is about thirty acres to be stripped here, from which a large amount of coal will be sent to market for many years to come.

Improvement at Lehigh Coal and Navigation Co.'s Collieries.

NESQUEHONING OR No. 3.—In shaft No. 1 the tunnel was continued from the north to the south dip of the Mammoth, 180 feet of which were driven during 1883. The total length of the tunnel is 1,550 feet. The Mammoth was found in good condition, 62 feet thick, and pitching 60°. A section of this tunnel is here presented, showing all the seams and measures from dip of the E to the other or Mammoth.

A tunnel or rock curve, 8′ × 12′, was driven from the south dip of the Red Ash gangway 178 feet north-west through a rock fault, cutting the seam 14 feet thick on a pitch of 30°.

At shaft No. 1 an additional boiler-house was erected 22′ × 60′, in which were placed four cylindrical boilers, 36″ in diameter and 36′ long. They were placed two in a nest, and a boiler stack 32″ in diameter and 40′ high attached to each.

Extensive improvements were made at the breaker, and five blocks of houses were built. A new railroad is being graded on the surface to connect the breaker with old No. 1 tunnel which is being re-opened, and from which the company expects to obtain large quantities of coal. The track, which is 42-inch gauge, is 1,700 feet long on the outside, and 3,100 feet on the inside, while the rails are 40 lb. steel ones. The motive power of the road will be one of the largest mine locomotives manufactured, it being of 16 tons weight.

A drift 850 feet long has been opened through the old workings to a large body of coal left in one of the upper gangways on the south dip of the Mammoth. This body of coal was left standing long ago, as the pitch from 12° to 15° was not sufficient to carry the coal, and plenty other coal being more available.

No. 6.—One 32 H. P. engine has been placed on the mountain to sink a slope 16″ wide and 8″ high from the rail. This slope is to be the second outlet to shaft No. 2, which is being sunk at present. A new boiler house containing three cylindrical boilers 32″ × 32″ has been erected.

At shaft No. 2 an engine house has been built, and a new engine 18″ × 36″ put in place. A boiler house containing four cylindrical boilers 36″ × 36′ has been erected. The shaft has been sunk to solid rock, a depth of nine yards, from which place a stone cement wall four feet thick was built to the surface on which the head-gear rests. A drift has been opened on the G, as a water level for the shaft which will take ninety feet off the vertical height from the pumps.

No. 9.—All the old workings on the water levels are opened. The timbering is excellently done and will compare favorably with any I have ever seen. On this branch there is not a collar or a leg less than two feet in diameter while the majority of them are from thirty to thirty-six inches.

The old second opening from the tunnel level to the surface above 200 yards long, has been re-opened, enlarged, and re-timbered throughout, and it now is about three times as large as it was previous to the fire. At the top of this opening a twenty-one-foot fan has been placed which is driven by an 18″×36′ engine. This fan affords ample ventilation at present, but in time a much larger one will be needed in the lower workings. A new railroad with 40-lb. steel rails has been built from No. 9 breaker to the Old Spring Vale tunnel. This road is two and three fourths miles long, and large quantities of coal will be shipped over it from the old workings, which will produce coal for many years to come. Five new blocks of houses have been built at Lansford.

Improvements at Linderman, Skeer & Co.'s Collieries.

WEST No. 1.—Three 33″×36′ cylindrical boilers were added to the number already in use and an iron stack 33″×60′ was erected. The second lift is nearly opened. A fan 16 feet in diameter was placed at this slope which at a revolution of 85 furnishes 65,166 cubic feet of air per minute.

No. 2.—All the boilers were repaired during the year and two new ones 33″ by 36′ were put in place. Four new cylindrical boilers 33″×22′ were put in at East No. 3.

A new slope is being sunk east of East No. 3, and a boiler-house and engine-house have been built there.

No. 4.—A No. 4 Murphy Champion Ventilator was put up here which is doing good service. A large amount of coal, at least 150,000 tons, will be stripped at Nos. 3 and 4; but the most extensive stripping will be done between East No. 3 and No. 2, where a bed of coal a mile in length extending over the first lifts and part of the second will be uncovered. Having no figures, I am unable to furnish any estimate of the amount of coal that will be mined here.

Improvements by Upper Lehigh Coal Company.

UPPER LEHIGH.—The surface road from breaker No. 2 to slope No. 6 was completed, and the first trip of cars passed over it May 14, 1883. This road is substantially built with 40-lb. steel rails. A new fan of the Blackman pattern was put in place near No. 6 slope. The fan, which is eight feet in diameter and fifteen inches in width, has eight blades, and it is driven by an eight-inch horizontal engine, power sufficient to produce two hundred and thirty-seven revolutions, and to produce 21,000 cubic feet of air per minute. As this fan is calculated to make five hundred revolutions, its capacity can be largely increased by putting in a more powerful engine.

SLOPE No. 5.—A new Murphy Champion Ventilator, six feet in diameter, was placed inside at the bottom of the second opening. At two hundred and seventy-seven revolutions, it produces 53,000 cubic feet of air per minute. The ventilator is driven by a 12″ horizontal engine.

A new locomotive from David Clark's machine shops, Hazleton, has been put at work on the No. 6 work.

Other improvements have been made both inside and outside.

Improvements made by J. Leisenring & Co., Eckley.

SLOPE No. 2.—A new inside slope is being sunk here which, at present, is down sixty yards. This slope will open up a large amount of coal. Two planes, 137 yards and 125 yards long respectively, have been driven. A new locomotive with cylinder, 9″ × 14″, was placed inside to transport the coal from the inside slopes to the bottom of No. 2.

A hole 8″ in diameter and 333′ long was sunk to pass the rope and carry steam to the pumps. On the surface four new cylindrical boilers, 36″ × 36′, were erected.

SLOPE No. 5.—An inside slope was sunk to the depth of one hundred and

fifty yards. The hoisting is done from the surface by an engine, 16″ × 30″, the ropes passing through a hole 8″ in diameter, and one hundred and ninety seven feet long. The steam is carried through the same hole. Locating hoisting power at the surface is a great improvement over former methods, and it adds largely to the safety of the mines.

Improvements made by M. S. Kemmerer & Co., at Sandy Run, Pond Run, and Harleigh.

Sandy Run, No. 4 Slope.—The west gangways at the inside slope, which was driven in poor coal, struck thick coal of good quality one hundred and ninety yards from the bottom. This gangway will open up a new range of breasts three hundred yards along the pitch. This new work largely increases the value of the property.

Four new cylindrical boilers 30″×30′ have been erected. Two new boilers 36″×36′ were put in at No. 5.

Pond Creek.—This place had been idle since October 31, 1881, and filled up with water. In November, 1882, the place was started by the above company, and the water drained from it by the last of December. The breaker was thoroughly overhauled, the old machinery removed, new machinery put in its place, and the capacity increased thirty per cent. A new reservoir was built, and the boilers and houses supplied with fresh water thereby. Several blocks of houses have been erected.

Harleigh.—This place suspended operations June 1, 1883, and remained idle until the 21st of September. The present company took charge in August. The breaker was overhauled during August and September. The new company will push work here with great vigor, their intention being to increase the shipments from here, to accomplish which old No. 3 is being re-opened. A new boiler-house is being built, which will contain six 36″×36′ cylindrical boilers. A tunnel is being driven from the Wharton to the Mammoth seam.

Improvements by G. B. Marple & Co.—Jeddo.

Oakdale No. 3.—The small steam pipes leading to the pumps were removed and an eight-inch pipe put in. The five-inch pipes connecting the boilers were replaced by a ten-inch pipe, which is a decided improvement.

An Artesian well 6″ in diameter was sunk on the south side of the Jeddo basin near the tunnel to a depth of three hundred and seventy-one feet, and a constant supply of water secured. A large block of miners' houses 90′×24′ has been erected. A plane four hundred and twenty-nine feet long has been driven up to the old Jeddo No. 1 gangway.

Highland No. 2.—A slope one hundred and twenty yards long, dipping eastward two and one half degrees, was sunk in the north basin.

Highland No. —.—Gangways are being turned on the second lift of the inside slope, and an inside slope has been started on the east gangway of the first lift of the main slope, for which work a pair of hoisting engines 14″×24″ in dimension were placed in position.

Improvements at Coleraine by W. H. Carter & Co.

No. 2.—A pair of new engines were placed at the top of the inside slope where an old one had been working. An 8″ double-acting pump was also put in to drain the inside of said slope.

At No. 1 a tunnel is being driven north from the Wharton, and it is expected to strike the B seam. Several small seams of coal have been cut by it, the largest being 3′ 7″. At present the tunnel is two hundred and forty-nine feet long, and has every prospect of reaching the desired point.

Improvements at Beaver Brook by G. M. Dodson & Co.

A new slope was opened during 1883 at the Beaver Brook colliery. It is located three fourths of a mile west of No. 2 slope, and is driven on the south dip of the Buck Mountain vein underlying the second basin, which corresponds with the first basin of Yorktown and the "shaft" basin of Audenried. The first thirty-three yards of the slope were driven through the overlying rock to strike the anticlinal between basins two and four, and then continued one hundred and fifty yards farther on the south dip of basin two, at an average pitch of twelve degrees. This slope is sixteen feet wide by seven feet, clear of rail, and is designed for two tracks. The vein has an average thickness of nine feet, seven feet being coal. A rock-shaft, one hundred and three deep by eight feet square, was sunk to the vein for ventilating purposes and to furnish an outlet for steam and water-pipes. A fan will be placed here in the near future. The Gamna vein was cut in this shaft fifty feet above the Buck mountain. Three feet of coal and nine feet of slate, and slate and coal mixture, formed this vein.

A new pump, Allison patent, with Isochronal valve movement, is being placed in the slope to drain it. Its dimensions are 12″ water cylinder, 30″ steam cylinder, and six-foot stroke, its capacity being about six hundred gallons per minute.

A new breaker was commenced in July at this slope and started to work November 19. It contains four hundred and fifty thousand feet of lumber, and has as machinery two hoisting engines of ninety horse-power, each raising the coal from both slope and surface levels; one breaker engine of fifty horse-power to drive the machinery; one 8″ pump, and one No. 7 pulsomater to supply the breaker with wash-water; five screens and four jigs.

The breaker has a capacity of six hundred tons daily, which will possibly be increased during the coming year to nine hundred tons by the addition of another wing with screens.

The breaker is connected with No. 5 slope by a surface road three quarters of a mile long, and west to the open quarry by a road one fourth mile long.

The breaker and slope are supplied with steam by fourteen cylindrica boilers 34″×30′, with necessary houses, fixtures, &c.

Improvements made by the Lehigh and Wilkes-Barre Coal Company at Treskow.

No. 19.—A single track slope 15′×8′ was sunk on the south pitch of the Wharton, east of the old Treskow workings. This slope reached the basin two hundred and forty-three feet from the starting-point at an angle of 32°. The second opening was driven up on the other pitch in good coal, the average thickness of which is eight feet.

Suitable engine and boiler-houses were erected. A new engine, 14″×24″ in dimensions was placed in position for hoisting, and four boilers, 34″×36, in dimensions, put up.

A new piece of road, four thousand feet long, was graded and ironed with forty-pound steel rails, to connect with an old road that ran to No. 2 breaker. The coal from this breaker is hauled by train over the surface a distance of one and one half miles.

Improvements made by Pardee Sons & Co. at Mount Pleasant.

No. 4 Slope.—A sixteen-foot fan has been placed in position here which ventilates this mine thoroughly.

A large Thatcher pump, with a capacity of six hundred gallons per minute, and having a new column and steam-pipe, was put in place.

Mount Pleasant slopes Nos. 4 and 5 are among the best ventilated mines in this district.

Improvements made by Pardee Bros. & Co., Lattimer.

Lattimer No. 3.—The breaker at this place, which was formerly known as No. 2, Milnesville, was purchased by this firm in the summer of 1883. The breaker was nearly rebuilt and greatly enlarged. Six additional cylindrical boilers were put in place and the water was pumped out of the slope, it being nearly full. A new Cameron pump, with steam and column-pipes attached, and having a capacity of five hundred gallons per minute, was put in place; and in order to be prepared for any emergency that might arise, a large Allison pump, with the steam and column-pipes attached, and having a capacity of one thousand gallons per minute, was put in. To ventilate the mine, a sixteen-foot fan, with suitable buildings, was erected.

A tunnel ninety yards long was driven north to open up another basin of coal, and a second opening was driven to the surface from it. From the south and north basins a large amount of coal can be taken out, as the Wharton, Parlor, and Mammoth veins combine at this point.

The fan is placed at the top of the outlet in the south basin, and the second opening from the north basin is used as an intake airway.

No. 3 is a model mine in every particular, and a safe and healthy place to work in.

Fatal Accidents resulting from Falls of Coal, Slate, and Roof.

Accident No. 1.—Nicholas Fichter, a French miner, aged forty-five years, was killed at Lattimer No. 2, on the third day of January. This was the first of the year's accidents, and without a doubt one of the most reckless of the number. The deceased was engaged in loading coal from an old

breast, the roof of which had previously fallen in, and his work was to load everything that came to the battery—coal, slate, and dirt.

On the day of the accident deceased had loaded all the coal that was at the battery, and instead of loading a few cars of slate, as he should have done to give the coal a chance to run, he recklessly went up through the battery up among the rocks a distance of about thirty feet, where he must have made an effort to start the coal, which, rushing down, caught him as he was endeavoring to reach the manway and crushed him against a manway prop.

As no person had witnessed the accident, the fate of deceased was not known until some hours after the sad event. His absence from his place of work having been noted, inquiries were made concerning him and a search instituted through the mine; but as these efforts furnished no clue to his whereabouts, it was feared that he must have been closed in the breast. Acting under the orders and supervision of Mr. Martin, the general inside foreman, the men began to load the coal in the breast in the vain hope of finding the unfortunate victim alive. After removing about thirty cars of coal, a pick, the first clue to the whereabouts of deceased, was found, and, actuated by this discovery, the miners worked with new zeal. About this time the mine-boss (Fagan) went up through the battery, and, after venturing some distance, he saw above his head the body of deceased fastened by a large piece of slate. Fearing that any effort to loosen the body would precipitate the mass of coal and slate upon him he did not make the attempt, but returned to his comrades and reported what he had seen. It was decided to rescue the body of deceased through the manway, and accordingly work was commenced for that purpose. When the body was reached, after hours of hard labor and risk, the inspector arrived at the place, who, having satisfied himself that the body was without life, interested himself for the safety of the living. He examined the breast above and found it unsafe to interfere with, and he therefore ordered the coal at that place to be spragged in the best possible way, which, having been done, the men removed the coal from around the body by hand, large pieces being broken by hammer and wedge. When the body was thought to be loosened it was found that one of the legs was held fast by a large flake of slate, and how to loosen that piece of slate was a problem whose solution was attended with much danger. There were reckless ones among the workers who wanted to break the piece and trust to luck—a plan which meant certain death to the whole party—but better counsel prevailed. A long chain was procured, one end of which was fastened to the body and the other in the manway, and, with a long steel bar and a hammer, the piece of slate was broken and the body released while the coal rushed madly down to fill the vacant space below. When the place had settled somewhat the body was hoisted out by the chain. I consider it extremely fortunate that no accident occurred during the work above described, as every step of the operation was attended with extreme danger. The cor-

oner's jury empaneled in this case returned a verdict that deceased met his death through his own recklessness in entering a place where he had no business to go.

Accident No. 9.—John Conahan, an Irish miner, aged fifty years, was fatally injured by a fall of the top tier of coal at Council Ridge No. 2, on the eighteenth day of January, and died from the effects of his injuries on the twenty-first day of the same month. The eighteenth was one of the idle days in the mining region, but deceased and his son entered the mines to lay a road and get some coal ready. The road had been laid, and a few shots fired, when suddenly a piece of coal fell and struck deceased on the head, fracturing his skull. This was a most unfortunate accident, and the more to be lamented, since Conahan was one of the best miners engaged at the place, and also one of the few careful ones.

Accident No. 17.—Henry Woodring, an American miner, and John Aleski, an Hungarian laborer, aged respectively forty and thirty years, were fatally injured at the Hollywood stripping, on the thirty-first day of January, by a fall of coal. Henry Woodring died the following day, and John Aleski died at the hospital in Philadelphia on the eighth day of March.

These two men, with several others, were engaged in blasting and loading the coal on the surface, the covering having been previously removed. The day of the accident was stormy and very wet, and to avoid the rain, the men endeavored to work under a part of the overhanging top coal which was held in its place by the frost of the preceding days. The water from melting snow and rain entered the crevices in the coal, and in my opinion, counteracted the effect of the frost, and caused the coal to fall on the men working beneath, with the result above stated. The place was considered safe during cold and frosty weather, but not during a thawing period, and the miner should have thought of this, especially since, according to the testimony of competent witnesses, the mine foreman was extremely careful to caution men from standing or working under any overhanging pieces, particularly in thawing weather.

Accident No. 18.—William Masterson, an Irish miner, aged fifty years, was fatally injured by a fall of coal in his breast, at Ebervale No. 3, on the sixth day of February, and died on the thirteenth of the same month.

The deceased, with another miner, was working a breast on an angle of 50° which was considered one of the safest breasts in the mine; yet, in this comparatively safe place, a piece of coal fell from the side and struck deceased on the back, injuring his spinal cord, from the effect of which he died as above stated. Masterson was considered a good and careful miner.

Accident No. 20.—William Davidson, an English miner, aged twenty-seven years, was fatally injured by a fall of coal in his breast at Oakdale No. 1, on the twenty-third day of February, and died on the following day, while undergoing a medical operation. The deceased was widening his breast to permit the further entrace of a car, and according to the testimony of the laborer, he entered the breast a few minutes after firing a shot

and finding that the blast had not done the required work, he sounded the coal with his pick, when suddenly the coal fell on him, crushing his leg and hip. In my opinion deceased exercised but little precaution, as he stood directly under the coal. If he had waited until the smoke had cleared away, he would, possibly, have seen that the coal was ready to fall, and as the coal was but a foot above his head he could have pried it down with his drill with entire safety to himself. By the exercise of a little care and ordinary intelligence, no danger would attend work in this place, as the breast is only twelve feet wide and the top coal standing.

ACCIDENT No. 37.—Iwia Gazdick, a Hungarian laborer, aged forty-eight years, was fatally injured by a fall of coal at Mount Pleasant on the second day of April and died on the fifth of the same month. The deceased worked with a miner named Maloy in the Mammoth vein which had been driven about sixty yards from the gangway. They had reached the terminus of the breast about three weeks previous, and at the time of the accident the coal was being loaded out. The miner had failed to notice any signs of danger during the work of loading, but when the last buggy was being loaded, a piece of coal weighing about fifty pounds fell, and striking the laborer on the top of the head knocked him down on the buggy. His injuries were supposed to be of a trivial nature, but through the lack of proper care, inflammation set in, from the effects of which he died on the day above stated.

ACCIDENT No. 62.—William Bambling, an English miner, aged fifty years, was instantly killed by a fall of coal at Oakdale No. 2, on the fifteenth day of May.

The deceased, with his two sons, was working "a buggy breast," the angle of which was about 6°. The breast, which was opened very narrow at the gangway, widened to eight yards at a distance of about thirty-five feet from the gangway, at which point a cross-cut had been driven and the top coal blasted down. Deceased and his sons had been loading the loose coal for more than a month (the coal here is about twenty feet high.) According to the testimony of the sons, their father had trimmed down all the loose coal when blasting the top and worked the place, (to which I also can testify,) leaving the width at the top no more than twelve feet. Yet in spite of all their precautions, on the fatal day above mentioned, while the father, on the rear end of the buggy, and the two sons, one on each side, were pushing it along, a piece of coal about eight inches thick fell on them, killing the father instantly and slightly injuring the boys, who were saved from more serious harm by their positions on the sides of the loaded buggy, and also by being somewhat below the top of it.

ACCIDENT No. 83.—Andrew Bursharg, a Hungarian laborer, aged thirty-five years, was instantly killed by a fall of coal at Upper Lehigh No. 2, on the twelfth day of June.

Deceased was working with a miner named Wilson in a very dangerous-looking breast which followed a roll, the coal being very high and shaly.

The miner had usually blasted the top coal first, but for a few days previous to the accident he had changed his plan of working and blasted the bottom coal. While engaged tamping a hole on the day of the accident, a large piece of coal fell from the side and struck the laborer, killing him instantly.

Accident No. 97.—Peter Herron, an Irish miner, aged forty years, was instantly killed by a fall of coal in his breast at Ebervale No. 1, on the 19th day of July.

The deceased, with a man named McGeehan, was working a breast pitching about thirty-two degrees, on the north dip in very shaly and irregular coal, about eighty or ninety feet thick. On the day of the accident they were putting in a length of manway, and their work was so far completed that deceased had called for an ax to fasten the last slab, when suddenly a large mass of coal fell, killing him instantly, and crushing a couple of lengths of the manway. There was no coal in the breast immediately preceding the accident, but such was the mass that fell that thirty car loads had to be removed before Herron's body could be found. The breast was nearly thirty feet up from the battery. In my examination of the place I failed to find anything wrong in the manner of working, yet I considered the place a very risky one to labor in. The only improvement I could suggest was to make stronger manways, by putting the props as straight as possible to guard against the breaking of the manway by future falls of coal. The deceased was looked upon as a first-class miner.

Accident No. 107.—James Carr, an Irish laborer, aged thirty years, was instantly killed by a fall of coal near the face of the breast at East Sugar Loaf, on the third day of August. The young man lost his life through the carelessness of the miner.

The breast was worked with a chute in the center and laid on the bottom slate, and to get the coal into the chute it became necessary for the laborer to go up near the face of the breast, and sometimes even under the edge of the top coal. A few minutes previous to the accident the miner had fired a blast in the benches, and, without giving the place time to settle, he returned to the breast followed by the deceased. The miner, instead of making an examination of the place, as he should have done, immediately commenced drilling another hole. The laborer proceeded to put the coal in the chute, at which work he had been engaged about ten minutes, when a large piece of the six-foot fell on him, killing him, as above stated.

Accident No. 143.—Barney Monaghan, an Irish driver, aged twenty-two years, was struck on the head by pieces of slate or coal and fatally injured while riding up the inside slope in the Wharton at No. 1, Jeanesville, on the twenty-ninth day of September and died on the —— day of October.

This was a most unfortunate accident, and one that could not have been guarded against. The deceased, with a door-boy and the footman, were being hoisted up the slope about noon on the day of the accident. The deceased was standing on the front bumpers, and the other two were in the

truck. When part way up the slope some unknown party signaled the engineer to stop the engine, which he accordingly did; but the signal to hoist having been given by the unknown party at the solicitation of the persons on the truck, the engineer started the engine. When the truck was about one hundred feet from the bottom of the slope, a joint in the steam-pipe, which was laid on the side of the slope, blew out, and scattered the loose coal and slate in every direction. Some of the flying pieces struck Monaghan on the head, cutting him severely. He walked to the doctor's office, and it was not thought that his injuries were of a serious character; but inflammation set in shortly after, and he died from its effects on the day above stated, leaving a widowed mother to mourn his loss.

The steam-pipe above mentioned passed about ten feet above the truck, in which position it had been left when the slope was graded, the bottom being so uneven as not to afford a suitable rest for it, as can be seen by consulting the sketch. A great deal of rock blasting had been done in the slope. Before the circumstances of the case were clearly understood, the company was severely censured in the premises, and perhaps for reasons extraneous to the matter, but, in my opinion, after a thorough examination of the place and the cause of the accident, I failed to discover any reason for attaching blame to them. If the unknown party had not rung the bell to stop the engine, the men would, in all probability, have passed the place before the steam-joint burst, and from the testimony produced in the case, voluminous though it was, I fell constrained to say that deceased met an "accidental death."

ACCIDENT No. 156.—Owen Sharp, an Irish miner, aged forty years, was fatally injured by a rush of coal at Tresckow No. 7, on the twentieth day of October, and died on the twenty-sixth of the same month. This accident occurred in a very simple manner. The deceased was engaged pushing coal down into the chute, when a large piece of coal rolled down and crushed his ankle. The shock to his system was so great that the doctor in charge decided to allow time for recuperation before amputating the limb. But the deceased never recovered from the blow, and died from its effects on the day above mentioned.

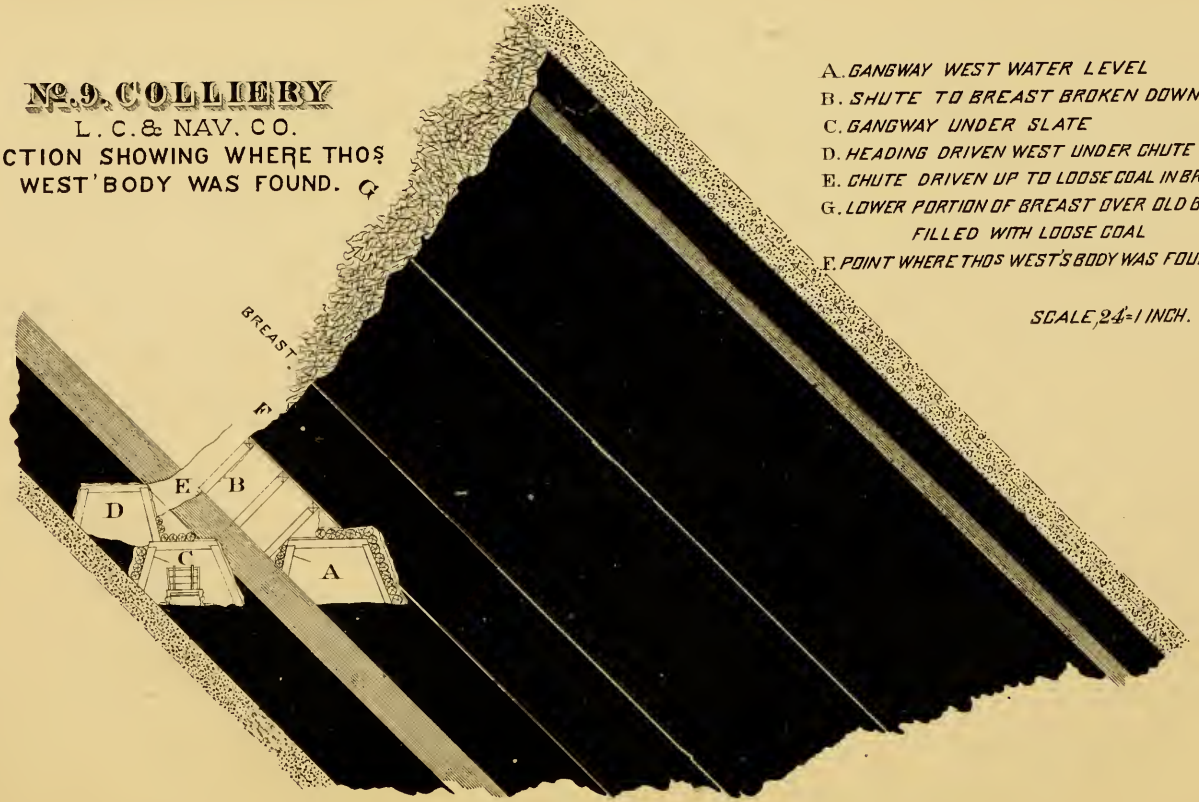
ACCIDENT No. 178.—Thomas West, an English miner, aged forty years, was killed by a rush of coal in his breast, at Lansford No. 9, on the tenth day of November.

The deceased, with a miner named Mulherrin, was reworking two chambers on the west side of the tunnel. The usual mode of operation was to open a narrow schute in the pillar and tap the coal on both sides. This had been successfully done, and they had been loading coal from these old places since October 1. The seam at this place was about sixty feet high, and the angle about fifty degrees. As deceased had not been working the previous day, he had little coal in his place, and naturally was anxious to make up for lost time. A short time previous to the accident, Mulherrin went into the gangway on an errand, leaving deceased eating near the

No. 9. COLLIERY

L. C. & NAV. CO.

SECTION SHOWING WHERE THOS WEST'S BODY WAS FOUND.



A. GANGWAY WEST WATER LEVEL
B. SHUTE TO BREAST BROKEN DOWN
C. GANGWAY UNDER SLATE
D. HEADING DRIVEN WEST UNDER CHUTE B
E. CHUTE DRIVEN UP TO LOOSE COAL IN BREAST
G. LOWER PORTION OF BREAST OVER OLD BREAST, FILLED WITH LOOSE COAL
F. POINT WHERE THOS WEST'S BODY WAS FOUND.

SCALE, 24 = 1 INCH.

battery. Hearing a rush of coal, he hurried back, but could find no trace of his partner. After searching for him for some time without success, he sought assistance. Numbers of men gathered about the place and at once commenced to load the coal through the battery, which work was kept up for hours without finding any trace of the missing man. It was then decided to drive a hole through the solid coal, which having been done, the body was found wedged against the lower pillar about ten feet from the battery, as will be seen by sketch.

When the battery was empty, deceased must have made steps in the coal to climb to the point where his body was found, and while there at work, the coal and slate made a rush and pinned him to the pillar, crushing out his life. The hands still held the pick when the body was found. The accident occurred about midday on the tenth, and the body was recovered about ten o'clock the next day, after having been buried nearly twenty-two hours. Venturing into such a place was an extremely reckless act on the part of the deceased.

Accident No. 189.—Hugh O'Donnell, an Irish miner, aged forty-seven years, was killed by a fall of coal in Wharton seam, at Harleigh. November 28.

O'Donnell had been engaged to re-open an old breast, and to avoid removing the slate and dirt, he decided to take a skip from the pillar, the coal being hard and the roof strong. The day previous to the accident he had fired a blast, and the mine-boss visiting the place, noticed a bad piece of coal, and ordered it to be taken down, which, by the testimony of a man working close by, deceased endeavored to do and failed. Another hole was then basted, and again the piece did not fall. Another hole was started, and during this work a driver took a car into the breast and left, leaving deceased alone. When the hole was drilled, the shot was fired, and deceased reëntered the breast immediately to load the car, which was about half filled when a piece of coal about eight inches thick fell on his neck and killed him.

Accident No. 200.—Condy Barrow, an Irish laborer, aged twenty-one years, was fatally injured by a fall of coal at Oak Dale No. 2, on the thirteenth day of December, and died the same evening. Deceased worked with a miner named Barnes in a breast starting at a gangway near the basin, and as the coal was very high the place was worked on a twenty-five degree pitch until the regular pitch of seventy degrees was reached.

The place had a battery and chute at the bottom and was worked with two manways. I considered the place a dangerous one, but with proper care it could have been worked safely. Judging from the manner of working the place, I would not pronounce the miner a very careful workman.

On the day of the accident, they were putting in the manway on one side. This work had been delayed for the three previous days, and this being the first of three idle days the miner considered it his duty to put up the manway. This work having been done, the miner for some reason

started the laborer to work throwing down coal, and while he was thus employed a piece of coal fell on him, killing him as above stated. The miner fortunately narrowly escaped a similar fate.

Fatal Accident by Blast through Pillar.

ACCIDENT No. 1.—Michael Connor, an Irish miner, aged forty-five years, was fatally injured by a blast blowing through a pillar at Beaver Brook, on the twenty-fifth day of January, from the effects of which he died on the twenty-eighth of the same month. The deceased lost his life in a purely accidental manner, as he had taken all necessary precautions in his work. A miner in an adjoining breast was driving a cross-cut which was nearly completed. Being ready to fire a blast, he warned deceased to leave his breast, which he accordingly did, and went into a cross-cut on the far side of another breast, a distance of thirty yards from the place of danger. The blast was fired, and a small piece of coal flew like lightning across two chambers and through two cross-cuts and struck deceased, injuring him so severely that he died as above stated.

This was the only fatal accident resulting from blasts through pillars, but several narrow escapes and some severe injuries are recorded from the same cause.

With the exercise of proper care and an implicit observance of rules, nearly all such accidents can be avoided.

Fatal Accidents by Cars.

ACCIDENT No. 16—John Davis, American, helper, aged thirteen years, was fatally injured by a mine car at Cross creek, No. 3, on the thirty-first day of January, and died the next day.

It was the duty of the deceased boy to ride on the rear of the trip to see that the cars did not get unhitched, which was possible on account of the unevenness of the road. At the time of the accident the boy, unknown to the driver, rode between the last two cars. In rounding a curve the cars separated to the extreme length of the couplings, leaving a space of about fifteen inches between the bumpers, and it seems that the boy slipped, and, falling between the cars, was mangled about the legs in a shocking manner by the last car passing over him. The boy was conveyed to his home, where he died in about three hours.

Riding between cars is one of the most dangerous practices indulged in by boys in and around the mines, and mine-bosses can never be too severe in adopting the most stringent measures to prevent it. A permanent discharge from work in and around the mines would be but a just punishment for those who persist in this dangerous practice.

ACCIDENT No. 58.—John Geisel, German, pump-runner, aged sixteen years, was instantly killed at Cross Creek colliery No. 2, on the third day of May, by being caught by the bridge-timber while riding up the slope on the front end of a sinking car.

The deceased, with two others in the car, was riding up the slope in vio-

lation of rules, which in Drifton No. 2 are to the effect that no one shall ride up the slope. At night a sinking car is used in place of the gun-boat in order to raise the coal from the lower gangways that are being opened. In my investigation I found that the night-men had made a practice of riding up the slope in the morning before the officials arrived, which violation of orders was not discovered until revealed by this accident. The distance from the rail to the timbers, where the accident occurred, is four feet nine inches, and to the top of the car four feet three inches, leaving a space of six inches between the top of the car and the timbers. According to the testimony of those on the car with him, the deceased lad was standing on the front bumper, and, not stooping when the car ran under the bridge, he was caught by the timber, and dragged through the six-inch space, and crushed to death, his body falling behind the car, from whence it rolled down the slope a distance of about fifty feet.

Accident No. 64.—John Rodgers, an Irish miner, aged about forty years, was killed by a mine car at East Sugar Loaf No. 4, on the sixteenth day of May. The deceased worked the first breast from the turnout near the bottom of the slope, the car following him. On the day of the accident, the deceased was in an unusual hurry for his complement of cars, and growled continually at the driver for not furnishing him with cars more rapidly. Previous to the accident, the driver had gone to the face of the gangway, about one hundred and fifty yards from the slope, to see if the gangway and airway cars were loaded, his mule meanwhile being tied near the foot of the slope. The deceased followed the driver, and desired him to remove his loaded car and run an empty one into his breast. Having been told to wait about five minutes, he returned to the foot of the slope, grumbling as he went, took the mule himself, hitched it to his loaaded car, and unfortunately fell under the wheels while the car was being drawn out. When the driver arrived at the foot of the slope, he found the mule and car there, and the dead body of Rodgers under the car.

Accident No. 65.—Elias Jenkins, American, helper, aged fifteen years, was fatally injured by mine cars at Cross Creek No. 3, on the sixteenth day of May, and died the same day.

Francis Burns, the driver, a young man about eighteen years of age, testified that while on his way into the branch near the foot of the slope, he chanced to look back and saw the deceased walking by the side of the cars, that a short time afterward he heard him screaming to stop the cars, which was done as soon as possible. Jenkin Giles, topman of inside slope, testified that he saw deceased at the end of the branch, walking by the side of the cars; that he had hold of the front bar with one hand, and held a sprag in the other; that while looking ahead about the cars on the branch, his foot was suddenly caught by a wheel, and he was dragged under the car; that the car had to be lifted to rescue him. In my investigation of this accident I failed to find cause for attaching blame to any one whatever, the

road being clean, and the distance between the two tracks, five feet three inches, sufficient for all safety.

ACCIDENT No. 91.—Edward Crossan, American, driver, aged twenty years, was killed by mine cars at Jeanesville, No. 1, on the twenty-first day of June. This was a sad accident, as deceased was doing another's work at the time. Deceased and two other young men were drivers hauling cars from the top of the run, which is about two hundred and fifty yards long, with an average pitch of four and a half degrees. These cars were run down the run by two other young men. The runners not being ready on the day mentioned, the drivers being in a hurry to get their last trip up, decided to run the trip down themselves, which they accordingly did. While on the way down, the last car, on which were five or six persons, jumped the track on the lower side, and striking the pillar, crushed deceased, who was on that side, against the pillar, thereby killing him instantly. The cars were running at such a speed that the hind car was dragged about forty feet before the couplings broke.

Orders requiring none but "runners" to take charge of these cars were given, and should have been rigidly enforced; but it is a noted fact that the most salutary rules are sometimes disobeyed, the mine-bosses being ignorant of the matter until an accident reveals the violation of orders.

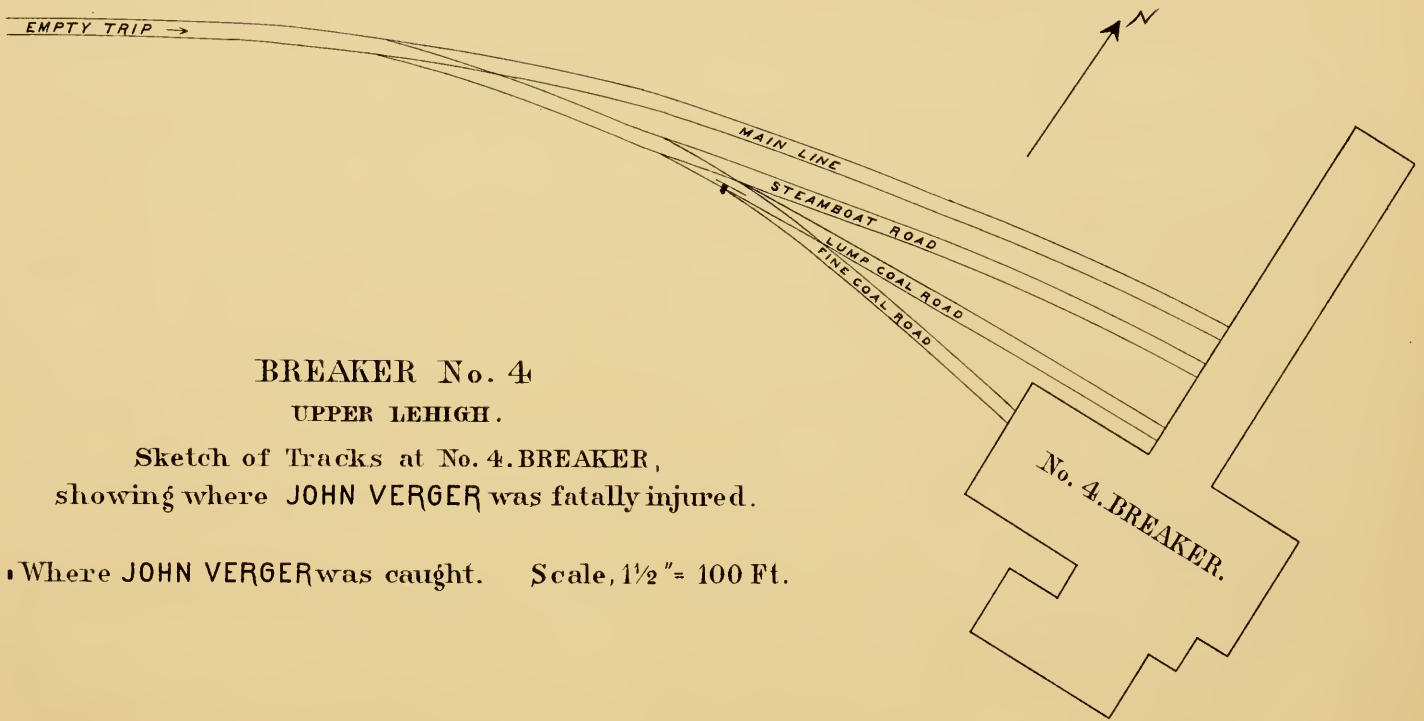
ACCIDENT No. 93.—James Kennedy, Irish, locomotive engineer, was fatally injured by being caught between the locomotive and cars at Cross Creek, No. 2, on the nineteenth day of July, and died the following day.

The deceased was engaged pulling loaded cars out of the slant, and running empty ones in and pushing them up into the several counters. At the time of the accident, deceased was pushing mine cars up the grade to the upper counter. About one hundred yards from the main road there is a sort of double curve similar to the letter S, with an angle of about two degrees, which makes pushing heavy work. Despite the fact that the orders forbade running more than six cars up the road at once, the engineer undertook to push nine cars. In rounding the second part of the double curve, the last car jumped the track and mounted the bumpers of the locomotive, jamming the engineer's leg against the boiler and completely crushing it below the knee. The injured man was released and taken to his home, where he died in about eight hours. Deceased was a worthy man, and in general was considered a careful one.

By request, pushing the cars up this grade has been discontinued, and fixed branches have been laid so that cars can be pulled up, a much safer operation than the other

ACCIDENT No. 139.—Frederick Locriski, Bohemian, laborer, aged thirty-five years, was fatally injured by a mine car at Lower Laurel Hill, on the twenty-sixth day of September, and died at the Bethlehem hospital on the second day of October.

Deceased was loading coal from a running chute in that gangway, and on the day mentioned, after loading a car, he sat on the side of the gang-



BREAKER No. 4

UPPER LEHIGH.

Sketch of Tracks at No. 4. BREAKER,
showing where JOHN VERGER was fatally injured.

• Where JOHN VERGER was caught. Scale, 1½" = 100 Ft.

way and commenced eating. While thus engaged he heard the team-driver coming, and instead of remaining where he was—a safe place—he ran back a few setts of a timber, losing his light on the way. By this time he was evidently greatly scared, as instead of calling to the driver to stop, he crouched down between the sets of timber, from which position one of his legs slipped and passed under the cars, which crushed it frightfully. The unfortunate man was conveyed to the above-named hospital, where he died as stated.

Accident No. 154.—Robert Robertson, American, driver, aged sixteen years, was fatally injured by an empty car near the foot of No. 5 slope at South Sugar Loaf, on the eighteenth day of October, and died in a few hours.

Deceased was engaged hauling loaded cars to the foot of the slope and removing empty ones. While taking some empty cars over the crossing, his mule started suddenly, threw deceased from the front end of the car, and dragged him about twenty feet, where he was jammed against a guide-rail, which is about six inches higher than the rail.

Accident No. 191.—John Vergot, Hungarian, laborer, aged nineteen years, was fatally injured by railroad cars near No. 4 breaker, Upper Lehigh, on the first day of December, and died on the tenth of the same month.

The deceased, with other Hungarians, were on the night shift loading cars at this breaker. Three of them ran the empty cars down for lump and fine coal. Deceased and another man ran about six cars down first and got stuck on the crossing. Both of them jumped off and began pushing, during which deceased's foot became fastened between the rail and the guide. Instead of calling the other men to stop pushing and come to his assistance, he only made a faint outcry, which was heard by a boss standing near, who ran to the place and found deceased uninjured but held fast by the wheel. The boss realized the man's danger, and instantly called to the other runner not to run any more cars down, but unfortunately it was too late, as a trip of ten other cars bumped against the standing cars at that time and set them in motion. Deceased was knocked down, and the cars passed over his leg and part of his body, injuring him so that he died as stated. This accident could have been avoided if the Hungarian running the second trip had been warned not to run any cars down until deceased had been released from his perilous situation, which would have been done by men of ordinary intelligence.

Accident No. 203.—Conoy McGee, American, driver, aged seventeen years, was instantly killed by falling under mine cars on the east gangway, Wharton No. 5, Yorktown, on the nineteenth day of December.

Deceased was taking two cars out of the gangway at the time of the accident, and as he approached a place where he had got stuck on the previous trip on account of the grading of the road, he jumped off the car, as a witness testified, evidently with the intention of urging his mule to go faster in order to overcome the difficult grade. As he jumped he fell

under the car, which, passing over him, mangled him in such a manner as to cause his death before he could be released.

ACCIDENT No. 211.—William Stone, English, locomotive engineer, aged twenty-three years, was fatally injured by mine cars near No. 3 breaker at East Sugar Loaf, on the twenty-ninth day of December, and died in a few hours. According to the testimony, the locomotive had lost a pin on the previous trip, and deceased was riding on the outside of the engine to look for it. Somehow he fell from his position on the locomotive under a mine car, which passed over his arm and crushed it to the shoulder, causing his death as stated.

Fatal Accidents by Mules.

ACCIDENT No. 81.—Michael Contra, Italian, driver, aged twenty-five years, was fatally injured by being thrown from a mule near Milnesville breaker, on the fifth day of June, and died in a few hours.

Deceased, who was a driver at the above-named breaker, was riding his mule from the stable, when the animal became frightened and made a sudden plunge. Deceased was thrown from the mule, and, in falling, he became entangled in the harness. The mule, having become thoroughly frightened, ran away, dragging deceased with him about one half a mile before being caught. When deceased was released he was found to be fatally injured, his head having been reduced to a soft mass by bumping against the ground.

ACCIDENT No. 136.—George Nesbitt, American, driver, aged fourteen years, was fatally injured by a mule at Ebervale No. 3, on the twentieth day of September, and died the following night.

Deceased, who was driving the empty cars from the foot of the slope, was walking behind his mule, when he was suddenly kicked in the abdomen. His injuries were not considered serious at the time; but, in a few hours after reaching home, his condition betokened internal bruises. While the testimony adduced in this case did not reveal any interference with the mule to cause him to kick, still I am of the opinion that some of the small boys about bothered him, so that, becoming ugly, he endeavored to kick them.

By Breaker Machinery.

ACCIDENT No. 95.—John Ziegler, German, breaker engineer, aged forty eight years, was killed at old Sugar Loaf breaker on the ninth day of July.

This was a peculiar accident, as the victim was an experienced and intelligent engineer, who had worked in the place a long time. The evidence in the case showed that deceased, having finished oiling the machinery at twenty minutes to seven, A. M., started the breaker at fifteen minutes to seven. Before seven o'clock, however, the top-men noticed something wrong in the motion of machinery, and, going down, found that deceased's clothes had been caught by two small pinions and drawn into the machinery by the cogs, where he was squeezed to death, his body being fearfully man-

gled. As deceased's oil-can was found near the spot, it appears that he had attempted to oil this place (having overlooked it) while the machinery was in motion, a dangerous undertaking and one which cost him his life.

ACCIDENT No. 202.—Henry Gearnhardt, German, slate-picker, aged fourteen years, was fatally injured by slipping into the monkey rollers at No. 6 breaker on the nineteenth day of December, and died in a few hours after having been taken home.

The deceased and another boy were feeding the rolls and throwing out the slate from the coal. The coal runs towards these rolls through a chute about two and one half feet wide and eight feet long when it turns at right angles. It seems that the coal would not slide easily on the sheet-iron, and about eight o'clock, A. M., deceased took a little can of water to throw on the iron to make the coal slip more readily. While throwing the water, the can slipped from his hand and passed down toward the rolls. In his efforts to recover the can he put his foot in the chute, steadying himself with a scraper; but, unfortunately, his foot slipped, his body slid down and the rolls catching one foot, drew in his leg to the hip, and mangled it in a shocking manner. It required an hour and a half to release the boy from his painful position. The place is about as safe as such places can usually be made. The opening to the rolls is only ——— ———, and has not been changed for four years. Persons employed in breakers cannot be too careful in the discharge of their work, and, under no circumstances, should step into the chutes leading to these rolls.

Smothered in Coal Chutes at Breakers.

ACCIDENT No. 167.—Joseph Soliver, Hungarian, laborer, aged thirty-seven years, was smothered in the dirt-pocket at Pond Creek breaker, on the twenty-fourth day of October.

The deceased had been sent to shovel back the dirt in the pocket, which is situated on the outside of the breaker. At twelve o'clock, after he had worked in the place about an hour, the breaker-boss told him to leave the chute, as the dirt was about to be loaded from it. According to the testimony of several witnesses, the deceased then left the chute, and the loader, after opening one gate as a signal for all parties to leave the chute, threw both gates open to allow the contents to pass readily into the car. At this chute a five-ton car can be filled in a couple of minutes. When the car was nearly filled, the loader was horrified at seeing the leg of a man protruding through the gate. He immediately called for assistance, and the body was taken out as speedily as possible, but life was extinct. From the time deceased left the chute until his body was recovered was not more than ten minutes. Nobody saw the unfortunate man reënter the chute. In all probability he left his shovel there, and in attempting to get it was drawn in and smothered.

ACCIDENT No. 174.—Joseph Walp, Italian, laborer, aged thirty years, was

smothered in the buckwheat coal-pocket at East Sugar Loaf No. 4 breaker, on the ninth day of November.

Deceased, with another Italian, was sent into the pocket, which was blocked, to shovel back the coal and thus keep the breaker running, cars being scarce that day. At five o'clock, P. M., the whistle signaled quitting-time, and the two Italians left the chute. About this time cars arrived, and at 5.05, P. M., the loader commenced to draw out the buckwheat coal. When a car was nearly filled, the gates were clogged by something, and taking his lamp, the loader, after examination, found a man's body in the chute. Not having sufficient presence of mind to allow the coal to run out, he being a Hungarian, the loader went to the breaker-boss, who did not believe his story, since he himself saw the two Italians leave the place. But he went down and, seeing the body, allowed the coal to run out and took out the body, from which life had departed. No one knows why the deceased reëntered the chute, and even after a thorough investigation I could not find a reason for his returning to the place or any one that saw him reënter it. I am not surprised that no one saw him go in again, as it was after quitting-time, and all employés leave the breaker in a few seconds after the whistle sounds.

ACCIDENT No. 184.—Elias Yaako, Hungarian, laborer, aged twenty-five years, was instantly killed by being drawn into the pea coal-pocket at West No. 1 East Sugar Loaf, on the twenty-third of November.

As the pocket was getting blocked, deceased was sent in to throw the coal back. When the loader was ready to draw the coal out, the breaker-boss called to the men to come out, but he, instead of returning by the way he entered, started in the opposite direction. While he was walking over the coal, the loader opened the gates, and the poor fellow was partly drawn in. Noticing the danger, the breaker-boss sent a boy to the loader, an Hungarian, with orders to close the gates; but he, either through misunderstanding the orders or from some unknown cause, did not obey, and the coal passed out until the man's body blocked the gate-openings. The breaker-boss, in the meantime, had jumped into the pocket to rescue the man, but without success, he being at the same time in danger of losing his own life. When the coal stopped running the boss made a desperate attempt to reach the man, but again he was foiled, the body having passed down to the gates. The coal was then allowed to run out on the track, as in previous cases, and the body was recovered. No one is to blame for this accident, as men of ordinary intelligence could rescue themselves when caught in coal-pocket in a similar manner as this man was.

Miscellaneous.

ACCIDENT No. 84.—Alfred Eli, American, slate picker, aged about fourteen years, was instantly killed at Yorktown No. 5 breaker, on the twelfth day of June, by being struck by a piece of iron thrown from the third story of the breaker.

Deceased, with the other employés, on this day was sent, during a slackness of coal in the breaker, to collect all the old scrap-iron in the building and carry it to the open windows on the second and third floors, to be thrown down by the two screen bosses. A young man about seventeen years old had been sent down to where the iron was being thrown to keep persons out of the way and thus avoid accidents. The young man testified that he executed his orders faithfully and warned both men and boys of the danger. During this time deceased was on the third floor carrying iron, but for some unknown reason, he went down stairs, and despite the warning he received, which he answered with an oath that they couldn't kill him, he marched boldly out. Unfortunately, at that moment a piece of iron had been thrown, which struck him on the head and dashed out his brains. No blame could be attached to any one for this accident, as the foolhardy victim met his death through his own rashness.

TABLE No. 5.—*A list of accidents resulting in death in the South district of Luzerne ending December*

DATE.	No. of accident.	Names of Persons Killed.	Occupation.	Age.	Widows.	Orphans.	Names of Collieries.
Jan. 3	1	Nicholas Fichter,	Miner,	45	1	6	Lattimer No. 2,
18	2	John Conaham,	Miner,	50	1	7	Council Ridge No. 2,
25	3	Michael Conner,	Miner,	45	1	8	Beaver Brook,
31	4	John Davis,	Helper,	13	.		Cross Creek No. 3,
31	5	Henry Woodring,	Miner,	40	1	3	Hollywood Stripping,
31	6	John Aluski,	Laborer,	30	1	2	Hollywood Stripping,
Feb. 6	7	William Masterson,	Miner,	50	1	1	Ebervale No. 3,
23	8	William Davidson,	Miner,	27	1	1	Oakdale No. 1,
April 2	9	Jura Gazdick,	Laborer,	48	1	6	Mount Pleasant,
May 3	10	John Geisel,	Pump-runner,	16		. .	Cross Creek No. 2,
15	11	George Bambling,	Miner,	55	1	. .	Oakdale No. 2,
16	12	John Rodgers,	Miner,	40	1	6	East Sugar Loaf No. -,
16	13	Elias Jenkins,	Helper,	15	. .	. .	Cross Creek No. 3,
June 5	14	Michael Contro,	Driver,	25	1	1	Milnesville,
12	15	Andrew Bersharg,	Laborer,	35	1	3	Upper Lehigh No. 2,
12	16	Alfred Eli,	Slate-picker,	14	. .	. .	Yorktown No. 5,
21	17	Edward Crossin,	Driver,	20			Jeansville,
July 9	18	John Ziegler,	Engineer,	48	1	4	Sugar Loaf,
19	19	Peter Herron,	Miner,	40	1	2	Ebervale,
19	20	James Kennedy,	Locomot'e engi'r	33	1	4	Cross Creek No. 2,
Aug. 3	21	James Carr,	Miner,	30	. .	. .	East Sugar Loaf No. 3,
Sept. 17	22	Samuel Scheim,	Carpenter,	21	. .		Tresckow No. 7,
17	23	John Sorbolic,	Helper,	14	.		Tresckow No. 7,
20	24	George Nesbit,	Driver,	14	. .		Ebervale No. 3,
26	25	Fred. Lochriskl,	Laborer,	35	1	5	Laurel Hill,
29	26	Barney Monahan,	Driver,	22	. .	. .	No. 1 Spring Mountain,
Oct. 18	27	Robert Robertson,	Driver,	18	.		East Sugar Loaf No. 4,
20	28	Owen Sharp,	Miner,	40	1	6	Tresckow No. 7,
24	29	Joseph Soliver,	Laborer,	37	1	4	Pond Creek,
Nov. 9	30	Joseph Walp,	Laborer,	30	1	2	East Sugar Loaf No. 4,
10	31	Thomas West,	Miner,	40	1	4	Lansford No. 9,
23	32	Elias Yanko,	Laborer,	25	1	1	East Sugar Loaf, W., No. 1,
28	33	Hugh O'Donnell,	Miner,	57	1	2	Harleigh,
Dec. 1	34	John Vergott,	Laborer,	19	. .	. .	Upper Lehigh No. 4,
13	35	Conoy Barron,	Laborer,	21	.	. .	Oakdale No. 2,
19	36	Henry Gearnhardt,	Slate-picker,	14	. .	. .	No. 6 Hazleton,
19	37	Conoy McGee,	Driver,	17	. .	. .	Yorktown No. 5,
29	38	W. H. Stone,	Locomot'e engi'r	23	. .	. .	East Sugar Loaf No. 3,
		Total,		. .	22	78	

Table of Comparison.

	1881.	1882.	1883.
Killed,	25	19	18
Fatally injured,	22	21	20
Total,	47	40	38

Nationality of Persons Fatally Injured during 1883.

By birth—Irish,	11	By birth—Welsh,	2
" Hungarian,	8	" Italian,	2
" American,	6	" French,	1
" English,	5		
" German,	3	Total,	38

and Carbon counties, Pennsylvania, with remarks on the cause of each, for the year 31, 1883.

Remarks on the Causes of Accidents.	Falling of roof and coal.	By mine cars.	Blast through pillar.	By mules.	Breaker machinery.	Smothered in breakers.	Miscellaneous outside.	Totals.	No. of accidents.
Caught by a rush of coal above battery and killed,	1							1	1
Fatally injured by a fall of coal; died on 23d of same month,	1							1	2
Fatally injured by a blast through a pillar, and died in three days,			1					1	3
Fatally injured by falling under mine cars; died the next day,		1						1	4
Both of these men were fatally injured by a fall of coal; Woodring died February 1, and Aluski died at the hospital February 12	1							2	5 6
Fatally injured by a fall of coal, and died on the 13th of same month,	1							1	7
Fatally injured by a fall of coal; died while under operation the following day,	1							1	8
Fatally injured by a fall of coal; died in three days,	1							1	9
Instantly killed by a mine car on slope,		1						1	10
Killed by a fall of top coal near face of breast,	1							1	11
Killed by falling under a mine car while attending to other men's work,		1						1	12
Fatally injured by falling under mine car; died the evening of same day,		1						1	13
Fatally injured by being thrown from a mule; died the same day,				1				1	14
Instantly killed by a fall of coal,	1							1	15
Killed by being struck on head by a piece of iron thrown from breaker,							1	1	16
Killed by mine cars on a run,		1						1	17
Killed in breaker machinery,					1			1	18
Killed by fall of coal in breast while putting in manway,	1							1	19
Fatally injured between locomotive and mine cars; died on the 21st,		1						1	20
Instantly killed by a fall of the six-foot, near face of breast,	1							1	21
These two men were killed on slope by rock rolling against them, caused by runaway car on slope,	1							2	22 23
Fatally injured by being kicked by a mule; died the following day,				1				1	24
Fatally injured by mine cars. Died on the 2d day of October at hospital,		1						1	25
Fatally injured by being struck on head by a piece of rock; died 30th	1							1	26
Fatally injured by falling under mine cars; died in the afternoon,		1						1	27
Fatally injured, ankle crushed by rolling coal; died on the 26th,	1							1	28
Killed by being drawn into the dirt pocket at breaker,						1		1	29
Killed by being drawn into the buckwheat pocket at breaker,						1		1	30
Killed by a rush of coal in breast,	1							1	31
Killed by being drawn into pea coal pocket at breaker,						1		1	32
Killed by a fall of coal while taking skip off pillar at gangway,	1							1	33
Crushed between railroad cars near beaker, and died on the 10th of same month,		1						1	34
Fatally injured by a fall of coal; died the same day,	1							1	35
Fatally injured, slipped into monkey rolls; died in about four hours,					1			1	36
Instantly killed by falling under mine cars,		1						1	37
Was fatally injured by falling between locomotive and mine car; died in three hours,		1						1	38
Total,	18	11	1	2	2	3	1	38	

Table of Comparison of Fatal Accidents.

	1881.	1882.	1883.
Explosion of carbureted hydrogen gas,	3	1	
Falls of coal, slate, and roof,	24	24	18
Falling into slopes,		1	
By mine cars inside and outside,	11	8	11
Premature blasts,	1	1	1
Miscellaneous inside and outside,	8	5	1
By mules inside and outside,			2
Smothered in coal chutes in breakers,			3
By breaker machinery,			2
Total,	47	40	38

TABLE No. 6.—*A list of non-fatal accidents in the south district of Luzerne and ing Decem-*

DATE.	No. of accident.	Names of Persons Injured.	Nationality.	Occupation.	Age.	Names of Collieries.
Jan. 8	1	W. J. Tonking, . .	English, . . .	Driver, ...	17	Nesquehoning, ...
9	2	John Weaver, ...	German, . . .	Laborer, . . .	21	Mount Pleasant, ...
9	3	William Evans, . . .	American, . .	Driver, ...	18	Hollywood, ...
11	4	Michael Boyle, . . .	Irish, ...	Miner, ...	27	East Sugar Loaf No. 1, . . .
12	5	Daniel Kennedy, . .	American, . .	Driver, ...	20	Drifton No. 2, ...
13	6	Charles Harvey, . .	Irish, . . .	Driver, . . .	20	Drifton No. 1, ...
15	7	Elems T. Albert, . .	American, . .	Carpenter, . .	40	Mount Pleasant, ...
18	8	Jackson Stiner, . .	American, . .	Miner, ...	22	Highland No. 2, ...
23	9	Stephen Patch, . . .	English, . . .	Helper, . . .	15	Mount Pleasant, ...
24	10	Henry Rose, ...	German, . . .	Dumper, . .	18	East Crystal Ridge, ...
29	11	Thomas Ballant, . .	Hungarian, .	Miner, ...	45	Gowen, ...
31	12	Joseph Hall, ...	English, . .	Laborer, . . .	32	Harleigh, ...
Feb. 9	13	George Umgart, .	German, . . .	Stable boss, .	60	Laurel Hill, ...
12	14	Mike Buranish, . .	Hungarian, .	Laborer, . . .	27	Laurel Hill, ...
28	15	Patrick Dougherty,	Irish, ...	Driver, . . .	16	Buck Mountain, ...
March 7	16	James Lane, . . .	English, . . .	Miner, ...	48	South Sugar Loaf, ...
7	17	George Mojuska, . .	Hungarian, .	Laborer, . . .	30	South Sugar Loaf, ...
7	18	James Whilding, . .	American, . .	Miner, ...	35	Lansford No. 4, ...
12	19	John Schrader, . . .	German, . .	Miner, ...	31	Oakdale No. 2, ...
14	20	Dennis Cambell, . .	Irish, ...	Miner, ...	25	Highland No. 2, ...
14	21	Andrew Brennan, .	Irish, ...	Fan boy, . . .	33	Spring Mountain No. 2, . .
19	22	Joseph O'Brien, . .	Irish, ...	Miner, ...	33	Spring Mountain No. 4, . .
20	23	John Raabe, ...	German, . .	Miner, . . .	48	Tresckow No. 2, ...
22	24	Benjamin Kimnel, .	American, . .	Car loader, .	22	Hazleton Mine, ...
26	25	Hugh Connner, . . .	Irish, ...	Laborer, .	25	Hazleton Mine, ...
26	26	Neal Bonner, . . .	Irish, . . .	Miner, . . .	45	Cross Creek No. 2, ...
28	27	Archelus Carpenny,	English, . . .	Miner, ...	27	Council Ridge No. 5, ...
29	28	John McFadden, .	Irish, . . .	Miner, ...	30	Highland No. 2, ...
April 2	29	Heerman Donka, . .	Hungarian, .	Miner, ...	35	Cranberry, ...
2	30	Rodger Quinn, . .	American, .	Laborer, . .	30	Cranberry, ...
3	31	Augustus Bellman, .	American, . .	Door boy, .	13	Cranberry, ...
3	32	John Dougherty, . .	Irish, ...	Miner, ...	50	Sugar Loaf, ...
4	33	Frank Gorman, . . .	German, . .	Miner, ...	45	Highland No. 2, ...
5	34	John Zeach, ...	Hungarian, .	Driver, ...	17	Ebervale No. 5, ...
9	35	Joseph Glovers, . .	Polander, . .	Miner, ...	30	Gowen, ...
12	36	Andrew Dixon, . .	English, . . .	Miner, ...	55	Highland No. 2, ...
17	37	James Johnson, 2d, .	American, . .	Driver, ...	18	Derringer, ...
17	38	Daniel Kishhardt, .	German, . . .	Miner, ...	50	Hazleton No. 6, ...
19	39	Thomas Soloman, . .	German, . . .	Miner, . . .	48	Nesquehoning, ...
19	40	Michael Humlowski,	Hungarian, .	Laborer, . . .	30	Nesquehoning, ...
19	41	Frank Gomber, . .	Hungarian, .	Laborer, . . .	28	Beaver Brook, ...
21	42	Christian Lehoke, .	German, . .	Miner, ...	45	Laurel Hill, ...
23	43	John Spencer, . . .	English, . . .	Miner, ...	48	Hazleton No. 7, ...
27	44	Barney Ward, ...	Irish, ...	Miner, ...	50	Oakdale No. 1, ...
28	45	Winfield Scott, . .	American, . .	Slate-picker,	13	Lansford No. 4, ...
30	46	Patrick Dougherty,	Irish, ...	Miner, ...	45	Sugar Loaf, ...
30	47	Thomas Matushoh, .	Pole, ...	Laborer, . . .	35	Hazleton No. 6, ...
May 2	48	Jenkin Giles, ...	Welsh, ...	Miner, ...	44	Cross Creek No. 3, ...
10	49	William McIlhenny,	Irish, ...	Company man	39	Hazleton Mine, ...
14	50	Daniel Sarx, . . .	German, . . .	Miner, ...	41	Lattimer No. 1, ...
14	51	Christian Shade, . .	American, . .	Laborer, . . .	20	Hazleton No. 6, ...
15	52	Frank Kelley, . . .	Irish, ...	Helper, . . .	16	Cross Creek No. 2, ...
17	53	Butler Ell, ...	American, . .	Laborer, . . .	55	Yorktown No. 5, ...

Carbon counties, Pennsylvania, with remarks on the cause of each, for the year ended December 31, 1883.

Remarks on Cause and Extent of Accidents.	Explosions of CH4 gas.	Falls of roof and coal.	By cars.	Explosion of powder.	Premature blasts.	Miscellaneous inside.	Miscellaneous outside.	Total.	No. of accident.
Seriously injured by mine cars; was sent to Pennsylvania Hospital, Philadelphia,			1					1	1
Seriously injured by a fall of coal from side of gangway while assisting to repair it,		1						1	2
Slightly injured; fell under mine cars,			1					1	3
Slightly injured on head and back by a small piece of coal from top of gangway,		1						1	4
Severely injured; caught between a car and chute,			1					1	5
Arm fractured; caught between car and roof,			1					1	6
Both arms fractured at wrists; fell from stage while putting steam-pipe in place,							1	1	7
Severely injured by falling down manway,						1		1	8
Leg severely cut and bruised by an empty car running over them,			1					1	9
Thumb cut off by rope and pulley near top of slope,							1	1	10
Severely injured by fall of slate in breast while propping it.		1						1	11
Collar-bone fractured; caught between car and prop near foot of slope,			1					1	12
Seriously injured; caught between car and collar while riding up the slope,			1					1	13
Severely injured; caught by a rush of coal at battery,		1						1	14
Collar-bone badly fractured; caught by mine car on slope, was sent to Pennsylvania Hospital, Philadelphia,			1					1	15
Both men were slightly injured by a fall of slate in a gangway, in the Wharton, which they had neglected to take down,		1						1	16
		1						1	17
Slightly injured by a premature blast,					1			1	18
Severely injured by a fall of coal from a pillar he was in the act of securing,		1						1	19
Slightly burned by an explosion of gas while going into a place he was forbidden,	1							1	20
Seriously burned by an explosion of gas through the gross neglect of a miner,	1							1	21
Slightly injured by a fall of coal, went right back after a blast,		1						1	22
Leg fractured by a fall of coal,		1						1	23
Struck on head and severely injured by a piece of ice falling from top of breaker,							1	1	24
Leg fractured by falling off a car near breaker while unloading it,							1	1	25
Slightly burned by an explosion of gas; disobeyed orders,	1							1	26
Leg fractured by a fall of coal; resulted from carelessness,		1						1	27
Arm fractured by a piece of coal that fell from pillar,		1						1	28
Slightly injured by a fall of coal in Wharton,		1						1	29
Slightly injured on hand while spragging a car,			1					1	30
Severely injured between a car and a door that he was attending,			1					1	31
Seriously injured; caught between car and timbers while riding into work,			1					1	32
Jaw-bone fractured and otherwise injured by a fall of coal,		1						1	33
Severely injured by falling from mule, getting entangled in harness, and dragged a distance,							1	1	34
Severely injured by a fall of coal, which fell when it was being barred down,		1						1	35
Seriously injured by a fall of coal,		1						1	36
Hand severely cut and bruised; was caught under a car-wheel,			1					1	37
Squeezed between a car and a prop while coming from his work,			1					1	38
Both of these men were slightly burned by an explosion of gas, results of carelessness on the part of the miner,	1							1	39
	1							1	40
Foot slightly injured; was caught in a screen at breaker,							1	1	41
Slightly burned by an explosion of powder,				1				1	42
Severely burned by an explosion of gas in an airway, ignited by lighting a match after brushing it,	1							1	43
Slightly injured about body by coal rolling against him,		1						1	44
Thumb mashed; caught in a monkey roll,							1	1	45
Seriously injured by a fall of coal,		1						1	46
Severely injured by a fall of coal while barring it down,		1						1	47
Seriously injured by a fall of coal while robbing pillars,		1						1	48
Slightly injured by a prop falling on him while putting it in place,						1		1	49
Foot fractured by being caught by a rush of coal from battery,		1						1	50
Seriously injured by a fall of coal near face of breast while loading a buggy,		1						1	51
Seriously injured by falling from locomotive near breaker,							1	1	52
Seriously injured; struck by mine car near breaker,							1	1	53

TABLE No. 6—

DATE.	No. of accident.	Names of Persons Injured.	Nationality.	Occupation.	Age.	Names of Collieries.
May 17	54	William Butler,	Irish,	Miner,	45	Hazleton No. 3,
17	55	John Ward,	Irish,	Miner,	35	Hazleton No. 3,
18	56	Andrew Dunco,	Hungarian,	Laborer,	20	Hollywood Stripping,
19	57	Thomas Solomon,	English,	Miner,	40	Nesquehoning,
19	58	Michael Haularski,	Hungarian,	Laborer,	27	Nesquehoning,
19	59	Anthony Driesbach,	Pole,	Miner,	35	East Crystal Ridge,
21	60	Patrick McLoughlin,	Irish,	Miner,	45	Cranberry,
22	61	Edw. McGaughan,	Irish,	Miner,	48	South Sugar Loaf,
25	62	Frank Ward,	American,	Driver,	14	Hazleton No. 3,
30	63	Patrick Mulligan,	Irish,	Miner,	33	Nesquehoning,
31	64	Joseph Handloss,	Austrian,	Laborer,	40	Beaver Meadow,
June 4	65	Julius Farenkoph,	German,	Laborer,	30	Nesquehoning,
6	66	Henry Rinbaugh,	American,	Driver,	23	Spring Mountain No. 1,
12	67	James Griffith,	American,	Footman,	36	Spring Mountain No, 1,
14	68	Michael Crossan,	American,	Driver,	19	Spring Mountain No. 1,
14	69	Richard Beamish,	American,	Driver,	16	East Crystal Ridge,
14	70	Michael Frischman,	German,	Miner,	56	Cranberry,
18	71	Frederick Rogers,	American,	Breaker boy,	15	Spring Mountain No. 1,
18	72	William Gerlach,	German,	Foreman,	48	Cranberry,
21	73	Hugh O'Donnel,	American,	Driver,	18	Spring Mountain No. 1,
25	74	Henry Speer,	German,	Miner,	40	Hazleton No. 7,
25	75	Wilson Lefler,	American,	Breaker boy,	14	East Crystal Ridge,
July 1	76	Frank Heeney,	Irish,	Miner,	48	Mount Pleasant,
10	77	John Redman,	German,	Driver,	18	Council Ridge No. 5,
20	78	Charles Hickman,	German,	Screen boss,	50	Laurel Hill,
24	79	John Docketz ,	Hungarian,	Miner,	40	Council Ridge No. 5,
25	80	Condy O'Donnell,	Irish,	Laborer,	30	Cross Creek No. 2,
28	81	Patrick Deveraux,	Irish,	Miner,	40	Mount Pleasant,
31	82	John Goigo,	Hungarian,	Laborer,	23	No. 6 Stripping,
31	83	William Kocher,	American,	Miner,	35	Derringer,
Aug. 1	84	Wm. H. Hartchus,	English,	Laborer,	30	Sugar Loaf,
1	85	Henry Shugart,	German,	Miner,	40	Laurel Hill,
7	86	James R. Brown,	English,	Miner,	35	Hazleton No. 7,
8	87	John Lavada,	Polish,	Laborer,	28	Council Ridge No. 2,
9	88	Henry Thomas,	Welsh,	Door boy,	13	Lansford No. 4,
9	89	William Lewis,	Welsh,	Laborer,	26	Lansford No. 4,
11	90	Owen Marsland,	English,	Miner,	54	Milnesville,
14	91	John Evans,	Hungarian,	Laborer,	25	Council Ridge No. 2,
18	92	Samuel McLoughlin,	Irish,	Miner,	47	Beaver Meadow,
21	93	John Kozak,	Polish,	Laborer,	32	Council Ridge No. 5,
22	94	Michael Smith,	American,	Laborer,	27	Nesquehoning,
22	95	John Welsh,	American,	Miner,	29	Hazleton No. 6,
25	96	Frank Gillesple,	Irish,	Driver,	17	Lansford, No. 5,
27	97	Dennis McGinley,	Irish,	Miner,	30	Nesquehoning,
27	98	Edward McGinley,	Irish,	Miner,	27	Nesquehoning,
30	99	David Aubrey,	American,	Driver,	16	Nesquehoning,
Sept. 1	100	Edward O'Donnel,	American,	Slate-picker,	13	Upper Lehigh,
1	101	James Davis,	American,	Laborer,	21	Lansford No. 5,
1	102	Thomas D. Davis,	Welsh,	Miner,	48	Upper Lehigh No. 4,
4	103	Thomas Dixon,	American,	Plane runner,	20	Hazleton No. 6,
5	104	Condy Conyngham,	Irish,	Miner,	40	Lansford No. 5,
12	105	Thomas Martin,	Irish,	Miner,	33	Tresckow No. 9,
12	106	Jerry Manning,	Irish,	Laborer,	40	Tresckow No. 9,
14	107	William I. Wright,	English,	Miner,	30	East Sugar Loaf,
14	108	John Huston,	Irish,	Driver,	19	Pond Creek,
14	109	William Watson,	American,	Miner,	27	Laurel Hill,
15	110	Henry Reynolds,	American,	Laborer,	22	Yorktown No. 5,
17	111	Michael Sorinskiu,	Hungarian,	Laborer,	22	Derringer,
17	112	John Broash,	German,	Miner,	35	Sugar Loaf,

Continued.

Remarks on Cause and Extent of Accidents.	Explosion of CH4 gas.	Falls of roof and coal.	By cars.	Explosion of powder.	Premature blasts.	Miscellaneous inside.	Miscellaneous outside.	Total.	No. of accident.
These men were severely injured by a fall, just as they went to work in the morning. Had fired a blast the day previous, a part of the hanging coal falling on them,	..	1	..	.	..	.	..	1	54
	..	1	..		..	..	..	1	55
Leg fratured by a fall of clay,		1	..	.	..	..	.	1	56
Were slightly burned by an explosion of gas in the red ash gangway, result of carelessness on the part of the miner,	1				..	.	..	1	57
	1	..	..	..	.	.	..	1	58
Collar bone fractured by being struck by a falling prop,				..	..	1	.	1	59
Severely injured by a fall of coal,		1	..	..			..	1	60
Severely injured by coal rushing over chute,	..	1	..	..				1	61
Arm fractured by falling, caused by sudden starting of his mule,		..	..		.	1	..	1	62
Seriously burned by an explosion of gas, resulting from his disobeying orders,	1		..			.	..	1	63
Severely burned on back and hands by an explosion of dynamite,				1			.	1	64
Lost two fingers by being struck by a piece of coal,	..	1	.	..			..	1	65
Leg fractured in two places by a mule falling on him,						1	..	1	66
Severe injury on leg; jammed between cars,	..	..	1	.			..	1	67
Hand badly crushed; caught by car wheel,	..		1					1	68
Foot badly cut by being run over by a mine car,			1				.	1	69
Seriously injured by a fall of slate in his breast in Wharton seam,		1					..	1	70
Seriously injured by being crushed under a mine car,	.		1					1	71
Foot badly injured by mine car running over it,	..		1				..	1	72
Slightly injured by runaway cars,		..	1		.			1	73
Leg severely cut by piece of coal rolling on it,	..	1		..			..	1	74
Leg severely injured caused by a mine car running over it, necessitating amputation,	..	..	1				..	1	75
Hip strained by falling while running away from blast,	..		.	..		1	..	1	76
Severely injured by mine cars,			1					1	77
Slightly injured; caught by belt in breaker,	..	..		..	..	.	1	1	78
Seriously injured; caught between a car and pillar,	.		1					1	79
Arm fractured; fell down a manway, a distance of about fifty feet,	.		.		..	1		1	80
Hand badly mashed while spragging a car; thumb had to be amputated,	..		1		..	.	.	1	81
Leg fractured by a stone falling on it,							1	1	82
Severely burned by an explosion of gas through carelessness,	1	.	..	..	..	..		1	83
Severely burned by an explosion of gas through neglect of fire boss,	1	..	..			.		1	84
Seriously burned by an explosion of gas through his own carelessness,	1	..		..	..	.	..	1	85
Severely burned by an explosion of gas, while going into an adjoining breast which was idle,	1				..	.		1	86
Leg fractured; caught between cars,	..		1	..	..	..	..	1	87
Slightly injured by mine car,			1		.		..	1	88
Foot injured by a piece of coal that rolled down from battery,	..	1		..	.	.	.	1	89
Foot badly crushed by a piece of coal rolling on it from battery,	..	1	.			.	.	1	90
Severely cut on head by a fall of slate,		1				.	.	1	91
Leg fractured by a fall of coal,	..	1	..	..	.	.	.	1	92
Leg fractured, and severely cut on head and face by a fall of coal,	..	1				.	.	1	93
Leg fractured; caught between locomotive and mine car on gangway,		..	1			.	..	1	94
Slipped while carrying prop, receiving injuries on head,	..	..		..	..	1	..	1	95
Was caught between cars and timbers; injuries light,			1	..		.	..	1	96
These men were severely burned by an explosion of gas in their breast. They were told by fire boss of the gas in their place, yet they went up with naked lamps,	1			..	..	.	..	1	97
	..	1		.	.	.	..	1	98
Slight injuries on leg, caused by being jammed by mine cars,		.	1	.	.	.	..	1	99
Hand and wrist fractured, necessitating amputation. Caught in gig while oiling,	..	.		..	..		1	1	100
Severe injuries on back, received by being caught between truck and timbers,		.	1	..		.	..	1	101
Severely injured on hip and head by a fall of rock,		1					.	1	102
Struck on neck by a falling prop, injuries not serious,	..	.	..	..	..	1	..	1	103
Shoulder blade fractured, and otherwise injured about body by a fall of coal,		1		..		.	..	1	104
These men were severely injured by a blast blowing through the pillar, between airway and gangway, through carelessness in not having a proper understanding in signaling,		.	.	..	1	.	..	1	105
	..			.	1	.	..	1	106
Caught by a slide of rock in breast, slightly injured on back,	..	1		..	..	..	..	1	107
Severely injured by being run over by a mine car,	..		1	..	..	..	..	1	108
Arms badly cut and bruised by a fall of coal,	..	1		..	..	..	..	1	109
Leg fractured near knee by a fall of coal,	..	1		..	..	..	..	1	110
Seriously injured, caught by railroad under breaker,	..	.	1	..	..	..	..	1	111
Leg and foot severely cut and bruised by a fall of coal,	..	1	..	..	..	..	..	1	112

TABLE No. 6—

DATE.	No. of accident.	Names of Persons Injured.	Nationality.	Occupation.	Age.	Names of Collieries.
Sept. 19	113	David Geaverheardt,	German,	Laborer,	45	Laurel Hill,
24	114	George Enstice,	English,	Miner,	60	Yorktown No. 5,
26	115	John Fishler,	German,	Miner,	42	Council Ridge No. 5,
26	116	Samuel Derby,	English,	Miner,	40	Lansford No 5,
28	117	Patrick Flynn,	Irish,	Laborer,	32	Hazleton Mine,
28	118	James Donahue,	Irish,	Miner,	38	Hazleton Mine,
Oct. 2	119	Neil Dougherty,	Irish,	Miner,	33	Lattimer No. 2,
2	120	David B. Watkin,	Welsh,	Miner,	32	Cross Creek No. 1,
2	121	Michael Kelly,	Irish,	Miner,	41	Oak Dale No. 2,
8	122	William Maloy,	Irish,	Door-boy,	13	Cross Creek No. 2,
10	123	Robert Sloan,	English,	Miner,	47	Harleigh,
10	124	Joseph Woskan,	Pole,	Laborer,	39	Mount Pleasant,
11	125	Charles White,	American,	Miner,	39	Council Ridge No. 5,
12	126	George Browell,	English,	Inside boss,	50	Oak Dale No. 2,
15	127	Hugh Boyle,	Irish,	Laborer,	56	Sugar Loaf,
17	128	Joseph Broskowski,	Pole,	Laborer,	21	Pond Creek,
20	129	George Szabo,	Hungarian,	Laborer,	34	Cross Creek No. 2,
20	130	Edward Smith,	English,	Miner,	23	Treskow No. 7,
22	131	Patrick Deveraux,	Irish,	Miner,	38	Spring Mountain No. 1,
22	132	James H. James,	English,	Driver,	16	Nesquehoning,
22	133	Andrew Harrison,	Hungarian,	Miner,	25	Mount Pleasant,
22	134	Nicholas Loerchum,	German,	Miner,	45	Laurel Hill,
22	135	John Lapp,	German,	Miner,	40	Laurel Hill,
23	136	Maurice Waters,	American,	Laborer,	38	Lattimer No. 2,
23	137	Washington Horn,	American,	Miner,	38	Gowen,
23	138	George Rudolph,	German,	Miner,	41	Gowen,
23	139	Henry Youngcourt,	German,	Foreman,	40	No. 3 Hazleton,
26	140	John Brown,	Irish,	Miner,	23	Humbold,
26	141	John Kelly,	Irish,	Miner,	30	Cross Creek No. 2,
27	142	Patrick McMulligan,	Irish,	Miner,	48	Harleigh,
27	143	Rudolph Flail,	American,	Miner,	47	Hollywood Stripping,
29	144	Patrick Dugan,	Irish,	Miner,	29	Highland No. 2,
Nov. 5	145	John Broderick,	Irish,	Helper,	14	Lattimer No. 2,
10	146	Lewis Stein,	American,	Laborer,	20	Sugar Loaf,
10	147	John Gallagher,	Irish,	Laborer,	40	Lattimer No. 2,
10	148	Daniel Shafer,	German,	Driver,	17	Lattimer No. 2,
12	149	Patrick McElwee,	Irish,	Miner,	50	Harleigh,
16	150	James Brennan,	Irish,	Runner,	18	Yorktown,
17	151	David Price,	Welsh,	Laborer,	47	Cross Creek No. 1,
18	152	John B. Jones,	Welsh,	Miner,	46	Council Ridge No. 5,
21	153	Flaris Kreitzer,	Hungarian,	Miner,	30	Derringer,
27	154	Evan Phillips,	Welsh,	Door-boy,	14	Cross Creek No. 1,
27	155	Patrick Hanlan,	Irish,	Miner,	47	Hazleton, No. 7,
28	156	David Gallagher,	Irish,	Miner,	42	Cross Creek No. 1,
28	157	Hugh McGarrah,	Irish,	Driver,	23	Pond Creek,
29	158	Michael Clark,	Irish,	Driver,	18	Nesquehoning,
Dec. 3	159	William Evans,	Welsh,	Laborer,	28	Harleigh,
5	160	Charles Boyle,	Irish,	Miner,	60	Yorktown No 6,
5	161	W. A. Davis,	Welsh,	Miner,	45	Yorktown No. 6,

Continued.

Remarks on Cause and Extent of Accidents.	Explosion of CH4 gas.	Falls of roof and coal.	By cars.	Explosion of powder.	Premature blasts.	Miscellaneous inside.	Miscellaneous outside.	Total.	No. of accident.
Leg fractured and otherwise injured through falling about ten feet in breaker,							1	1	113
Seriously injured by a fall of coal while timbering his gangway,		1						1	114
Leg fractured by a piece of coal falling on it while barring it down,		1						1	115
Back and body slightly injured by a fall of coal,		1						1	116
Shoulder-blade fractured; struck by a piece of coal rolling down slope,		1						1	117
Legs badly cut and bruised by a fall of coal while barring it down,		1						1	118
Seriously injured by a fall of coal in breast,		1						1	119
Burned by an explosion of gas near face of his gangway through gross carelessness,	1							1	120
Seriously injured by a blast through a pillar, through his own neglect; result, fractured ribs and other injuries,					1			1	121
Arm fractured, caused by falling while running after a mule,						1		1	122
Left thigh and ankle, right leg and arm fractured by a fall of coal, through gross carelessness,		1						1	123
Leg fractured and arm severely cut by a fall of coal,		1						1	124
Leg fractured by a fall of coal, which happened while he was loading a car,		1						1	125
Severely burned by an explosion of gas; he entered the chamber expecting to find the miner there, instead of that came in contact with the gas which had accumulated after miner had left, caused by blast closing one of the manways cutting off ventilation,	1							1	126
Finger fractured by mine cars, through the topman's failure to unhook,			1					1	127
Arm fractured by falling off mine car,			1					1	128
Knee badly injured; caught between cars while uncoupling,			1					1	129
Lost an eye by being burned by a mine lamp,						1		1	130
Forehead and leg badly cut by a fall of coal,		1						1	131
Arm fractured by falling under mine car,			1					1	132
Head and face severely burned by an explosion; while taking cartridge up breast Harrison slipped, breaking cartridge, his lamp falling into the loose powder caused the explosion,				1				1	133
These men were severely burned by an explosion of gas ignited by a blast,	1							1	134
	1							1	135
Severely injured; was struck by a piece of coal that rolled down slope,		1						1	136
These two men were seriously burned while going up their manway in the morning; were notified by fire-boss of the existence of gas, yet paid no heed to that but went up with their naked lights with the result as stated,	1							1	137
	1							1	138
Foot fractured by a slab falling on it while directing timbermen on gangway,						1		1	139
Leg fractured by a lump of coal rolling on it,		1						1	140
Finger fractured by a lump of coal thrown on it by laborer,		1						1	141
Thigh fractured by a fall of coal in breast,		1						1	142
Seriously burned by an explosion of powder while preparing a blast,				1				1	143
Slightly burned by an explosion of gas by the neglect of fire-boss,	1							1	144
Struck by a piece of coal rolling down slope; injuries not serious,		1						1	145
Seriously injured by being struck by a roller that came loose on slope,						1		1	146
Slightly injured; was struck by a piece of coal that rolled down slope,		1						1	147
Severely injured; squeezed between car and prop,			1					1	148
Badly bruised by a fall of coal while going up breast,		1						1	149
Compound fracture of leg by a piece of coal falling on it from loaded car,		1						1	150
Collar-bone fractured, caused by falling while carrying a prop,						1		1	151
Arm fractured by flying coal from premature blast,					1			1	152
Seriously burned by an explosion of a keg of powder, a spark from his lamp falling in,				1				1	153
Arm fractured by being kicked by a mule,						1		1	154
Hands and shoulders cut by coal falling from pillar,		1						1	155
Hands and face burned by an explosion of gas near face of gangway,	1							1	156
Arm fractured; kicked by a mule,						1		1	157
Severe injuries on leg; fell under mine car,			1					1	158
Slightly injured by a fall of coal,		1						1	159
Thigh fractured and otherwise injured by a fall of coal,		1						1	160
Slightly injured by a premature blast,					1			1	161

TABLE No. 6—

DATE.	No. of accident.	Names of Persons Injured.	Nationality.	Occupation.	Age.	Names of Collieries.
Dec. 6	162	Herman Reichardt,	German,	Laborer,	18	Lattimer No. 1,
7	163	John Burns,	Irish,	Laborer,	60	Nesquehoning,
9	164	Lawrence Fish,	German,	Laborer,	25	East Sugar Loaf,
11	165	Michael McDermott,	Irish,	Miner,	21	Lattimer No. 3,
12	166	Lewis Beltzmer,	American,	Carpenter,	20	Upper Lehigh No. 2,
15	167	John Rapp,	Hungarian,	Laborer,	20	East Sugar Loaf,
20	168	Joseph Groski,	Pole,	Miner,	35	Cross Creek No. 1,
20	169	John W. Richards,	English,	Laborer,	27	Cross Creek No. 1,
20	170	Thomas Edwards,	Welsh,	Driver,	24	Harleigh,
22	171	William McAffee,	Irish,	Laborer,	30	Gowen,
27	172	James McFadden,	Irish,	Miner,	50	Yorktown No. 5,
27	173	John Matthews,	Irish,	Laborer,	17	Cranberry,

Number of the Different Nationalities that were Injured in and Around the Mines during 1883.

By birth—Irish,	53
" American,	37
" German,	26
" English,	19
" Hungarian,	18
" Welsh,	10
" Polish,	9
" Austrian,	1
Total,	173

Continued.

Remarks on Cause and Extent of Accident.	Explosion of CH_4 gas.	Falls of roof and coal.	By cars.	Explosion of powder.	Premature blast.	Miscellaneous inside.	Miscellaneous outside.	Total.	No. of accident.
Leg fractured; caught between railroad cars near breaker,			1					1	162
Foot fractured by falling from trestling,							1	1	163
Leg fractured; caught under track near foot of slope,			1					1	164
Badly bruised by coal rolling on him in breast,		1						1	165
Leg fractured by a piece of timber falling on it at new breaker,							1	1	166
Leg fractured by a fall of clay at stripping,							1	1	167
Were severely burned by an explosion of gas in their breast.	1							1	168
They knew of the existence of gas, and brushed it out, leaving naked light on platform,	1							1	169
Severely bruised by a mule falling on him,						1		1	170
Ankle bone and leg fractured by a fall of coal,		1						1	171
Collar bone and three ribs fractured by a fall of coal,		1						1	172
Seriously injured by being accidentally struck on head with a pick,							1	1	173
Total,	26	64	38	5	6	17	17	173	

Recapitulation and Table of Comparison.

	1881.	1882.	1883.
Explosion of carbureted hydrogen gas,	11	8	26
Falls of roof and coal,	25	58	64
Injured by cars,	32	28	38
Explosion of powder,		3	5
Premature blasts,	4	10	6
Miscellaneous inside,	7	7	17
Miscellaneous outside,	9	22	17
Total,	88	136	173

TABLE No. 7.—*Number of each class of employés at each colliery during the year 1883.*

A. PARDEE & CO.

NAME AND NUMBER OF COLLIERY.	NUMBER OF EMPLOYEES INSIDE.											NUMBER OF EMPLOYEES OUTSIDE.											GRAND TOTAL, INSIDE AND OUT.
	Mine bosses.	Engineers and pumpers.	Miners.	Miners' laborers.	Men timbering.	Road and repairmen.	Drivers and car runners.	Men at top and bottom of slopes or planes.	Oilers and door-boys.	Men employed at other work, if any.	Total inside.	Breaker and screen bosses.	Hoisting and pumping engineers.	Firemen.	Machinists.	Carpenters and blacksmiths.	Breaker men in all capacities.	Drivers.	Slate pickers.	Teamsters, choppers, stable bosses, &c.	Superintendents, ass't superintend'ts, clerks, and book-keepers.	Total outside.	
Hazleton Mine, Hazleton, No. 1,	2	1	77	43	9	7	14	6	5	. .	164	5	5	4	. . .	4	53	. . .	51	. . .	. . .	122	286
Laurel Hill, Hazleton, Nos. 4 and 5,	2	2	51	23	8	6	11	6	5	2	116	5	4	4	. . .	8	49	. .	75	1	. . .	146	262
Number Six, Hazleton, No. 6,	1	. .	87	11	. .	3	11	1	4	14	132	3	1	1	. . .	3	25	. . .	69	. . .	. . .	102	234
Number Three, Hazleton, No. 3,	1	. .	51	17	5	3	7	1	3	. . .	88	3	3	4	. .	3	25	. .	34	. .	. . .	72	160
Sugar Loaf, Diamond, Nos. 1 and 2,	1	. .	33	21	9	4	8	2	3	1	82	2	5	5	. . .	3	29	. . .	28	2	. . .	74	156
South Sugar Loaf, Diamond, No. 3,	1	. .	51	19	2	3	6	1	3	. . .	86	2	2	2	. . .	3	16	. . .	27	. . .	. . .	52	138
Cranberry, Cranberry, No. 1,	3	8	100	35	3	9	15	3	5	. . .	181	4	2	3	. . .	5	28	. .	58	1	. . .	101	282
East Crystal Ridge, Cranberry, No. 4,	1	. .	24	2	.	3	6	3	2	. . .	41	2	2	2	. . .	3	22	. .	22	. . .	. . .	53	94
Mechanics, teamsters, &c., doing general work at all the collieries,	2	. .	. . .	. . .	. .	. .	. . .	. . .	. . .	2	4	. . .	. .	. . .	9	23	. .	. .	. . .	33	11	76	80
	14	11	474	171	36	38	78	23	30	19	894	26	24	25	9	55	247	. . .	364	37	11	798	1,692

COXE BROS. & CO.

Drifton, No. 1,	1	9	110	88	19	18	21	8	5	22	301	4	2	7	6	6	36	3	89	12	17	182	483
Drifton, No. 2,	2	3	82	58	19	15	38	6	8	16	247	3	4	5	. .	6	24	2	87	8	. . .	139	386
Drifton, No. 3,	1	1	18	10	4	3	11	3	. . .	. .	51	2	1	3	. . .	3	6	2	34	1	. .	52	103
Gowen,	1	3	57	24	11	6	21	4	3	37	167	3	5	3	2	8	18	2	53	6	1	101	268
Derringer,	1	2	62	24	9	16	11	5	3	54	187	2	4	7	2	7	21	2	55	6	2	108	295
*Tomhicken,	1	2	10	6	10	9	19	6	2	12	77	2	2	6	6	7	.	.		8	. .	31	108
Beaver Meadow,	1	2	8	5	9	7	16	8	1	80	137	4	4	8	4	15	11	1	64	6	1	118	255
	8	22	347	215	81	74	137	40	22	221	1,167	20	22	39	20	52	116	12	382	47	21	731	1,898

LINDERMAN, SKEER & CO.

Stockton, No. 1,	1	. .	11	13		1	4	3	3	. . .	36	1	2	2	6	2	21	1	37	. . .	. . .	72	108
Stockton, No. 2,	1	3	20	24	37	5	9	1	4	1	105	1	2	4	6	3	22	3	41	. . .	. . .	82	187
Stockton, No. 3,	2	4	58	40	2	12	8	7	7	7	147	1	4	4	6	3	34	1	31	. . .	.	84	231
Stockton, No. 5,	2	4	84	44	3	8	20	5	4	1	175	1	4	4	. . .	4	49	2	42	. .	5	111	286
Humboldt,	1	2	34	37	2	5	12	3	2	. . .	98	2	4	4	. .	4	15	. .	28	4	5	66	164
Mechanics and laborers doing general work,	. .	. .	. . .	. . .	.	. .	. . .	. .	. .	. . .	. . .	. .	. . .	. .	. . .	.	. . .	. .	.	. .	. . .	77	77
	7	13	207	158	44	31	53	19	20	9	561	6	16	18	18	16	141	7	179	4	10	492	1,053

LEHIGH COAL AND NAVIGATION COMPANY.

Nesquehoning, No. 3,	3	3	67	25	18	4	29	6	8	21	184	5	4	11	2	7	49	7	76	5	2	168	352
Lansford, No. 4.	1	5	49	48	34	4	23	4	11	2	181	3	4	7	. . .	3	19	13	48	2	. . .	99	280
Lansford, No. 5,	1	4	37	26	30	4	20	12	9	2	145	4	2	1	. . .	3	36	9	46	2	. . .	103	248
Lansford, No. 6,	1	. .	56	40	15	4	14	8	3	. . .	141	3	4	2	.	3	19	9	40	4	. .	84	225
Lansford, No. 9,	3	. .	98	67	14	6	19	. . .	9	4	220	6	4	5	. . .	4	48	12	59	5	. .	143	363
Hauto screen building,	. .	. .	. . .	. . .	. .	. .	. .	. . .	. . .	. . .	. . .	2	2	4	2	2	57	8	43	. . .	.	120	120
	9	12	307	206	111	22	105	30	40	29	871	23	20	30	4	22	228	58	312	18	2	717	1,588

G. B. MARKLE & CO.

Oak Dale, No. 1,	1	4	95	12	. .	6	23	. . .	9	. . .	150	2	1	5	6	3	28	. . .	39	5	5	94	242
Oak Dale, No. 2,	1	2	108	8	. .	4	21	. . .	13	. . .	157	2	1	4	6	3	31	. . .	41	5	5	98	255
Highland, No. 1,	1	5	102	20	. .	6	17	. . .	8	. .	159	2	1	3	6	3	32	. . .	51	5	5	108	267
Highland, No. 2,	1	4	70	11	. .	10	11	. .	6	. . .	113	2	1	3	4	3	22	. . .	38	4	9	86	199
	4	15	375	51	. .	26	72	. . .	36	. . .	579	8	4	15	22	12	113	. . .	169	19	24	386	965

*Shipped no coal during the year.

TABLE No. 7 – *Continued.*

UPPER LEHIGH COAL COMPANY.

NAME AND NUMBER OF COLLIERY.	NUMBER OF EMPLOYEES INSIDE.											NUMBER OF EMPLOYEES OUTSIDE.											Grand totals, inside and out.
	Mine bosses.	Engineers and pumpers.	Miners.	Miners' laborers.	Men timbering.	Road and repairmen.	Drivers and car runners.	Men at top and bottom of slopes or planes.	Oilers and door-boys.	Men employed at other work, if any.	Total inside.	Breaker and screen bosses.	Hoisting and pumping engineers.	Firemen.	Machinists.	Carpenters and blacksmiths.	Breaker men in all capacities.	Drivers.	Slate pickers.	Teamsters, choppers, stable bosses, &c.	Superintendents, ass't superintend'ts, clerks, and book-keepers.	Total outside.	
Upper Lehigh No. 1, } No.	1	1	6	13	. .	2	5	4	1	}													
Upper Lehigh No. 2, } 2.	1	6	27	27	. .	2	13	3	1	}	. . 204	4	7	7	3	8	23	3	55	6	9	125	329
Upper Lehigh No. 5, }	1	. .	24	19	. .	2	4	3	1	}													
Upper Lehigh No. 6, }	1	. .	17	7	. .	5	4	3	. . .														
Upper Lehigh No. 4, . . .	1	1	70	60	. .	2	18	4	. .	3	159	4	3	4	2	3	19	3	55	3	. . .	96	255
	5	8	144	126	. .	13	44	17	3	3	363	8	10	11	5	11	42	6	110	9	9	221	584
J. LEISENRING & CO.																							
Eckley No. 2, ...	1	9	74	49	. .	10	25	6	8	1	183	2	1	8	1	9	54	4	62	10	13	164	347
Eckley No. 5, ...	1	5	69	44	. .	7	24	5	16	4	175	2	1	4	. .	5	26	2	64	. . .	. . .	104	279
	2	14	143	93	. .	17	49	11	24	5	358	4	2	12	1	14	80	6	126	10	13	268	626
J. C. HAYDON & CO.																							
Jeansville No. 1, ...	1	2	53	81	2	2	24	3	4	. . .	172	3	2	4	3	3	33	3	30	. . .	. .	81	253
Jeansville No. 4, ...	1	2	26	31	1	2	15	1	4	3	} 183	3	6	8	2	10	21	4	52	10	4	120	303
Jeansville No. 7, ...	1	. .	36	37	1	2	14	2	4	. . .	}												
	3	4	115	149	4	6	53	6	12	3	355	6	8	12	5	13	54	7	82	10	4	201	556

PARDEE BROS. & CO.

Lattimer No. 1,	1	2	35	24	3	10	5	2	3	4	89	3	1	2	. .	5	24	4	63	3	. . .	104	193
Lattimer No. 2,	1	5	36	24	13	13	6	5	6	4	113	3	1	2	1	5	25	4	59	2	6	108	221
Lattimer No. 3,	1	1	45	18	. .	6	3	2	. . .	1	77	2	1	2	1	4	21	1	35	1	. . .	68	145
	3	8	116	66	16	29	14	9	9	9	279	8	3	6	2	14	70	9	157	5	6	280	559

EBERVALE COAL COMPANY.

Ebervale No. 1,		2	28	10	3	2	9	2	1	1													
Ebervale No. 2,	1	2	30	18	7	2	9	2	. . .	1													
Ebervale No. 3,	. .	2	6	4	3	3	3	. .	. . .	. . .	188	3	5	12	3	6	33	5	56	13	8	144	332
Ebervale No. 4,	1	. .	20	1	. .	1	2	1	. . .	. . .													
Ebervale No. 5,	. .	. .	8	. . .	. .	. .	2	1	. .	. .													
	2	6	92	33	13	8	25	6	1	2	188	3	5	12	3	6	33	5	56	13	8	144	332

G. H. MYERS & CO.

Yorktown No. 5,	2	2	32	27	3	4	10	3	2	14	99	3	2	8	1	5	9	2	44	4	3	81	180
Yorktown No. 6,	1	3	36	15	2	4	6	5	2	49	123	3	3	5	1	6	11	2	53	. . .	. . .	84	207
	3	5	68	42	5	8	16	8	4	63	222	6	5	13	2	11	20	4	97	4	3	165	387

STOUT COAL COMPANY.

Milnesville No. 5,	. .	1	9	3	.	2	3	2	1	. . .	104	2	5	5	1	6	28	3	40	3	3	96	200
Milnesville No. 7,	1	1	33	9	4	2	7	6	4	16													
	1	2	42	12	4	4	10	8	5	16	104	2	5	5	1	6	28	3	40	3	3	96	200

MISCELLANEOUS COMPANIES.

Hollywood,	1	1	15	65	. .	2	18	4	3	. .	109	1	4	4	. . .	9	35	6	88	5	3	155	264
Mt. Pleasant,	3	. .	119	83	8	9	30	12	10	. .	274	4	15	7	. . .	15	56	2	80	6	3	188	462
Sandy Run, M.S.Kemmerer & Co.,	1	4	81	91	. .	4	19	6	20	20	246	3	4	5	2	4	29	1	82	13	7	150	396
Beaver Brook, G. M. Dodson & Co.,	1	3	24	42		3	7	8	4	. . .	92	2	4	8	1	7	20	5	35	3	4	89	181
Treskow, L. & W. C. Co.,	2	3	71	48	3	2	18	8	4	19	178	3	8	6	. . .	7	38	2	84	3	1	152	330
Buck Mountain B. C. Co.,	1	4	59	25	1	2	15	8	4	3	122	1	5	6	1	9	24	15	40	12	4	117	239
Coleraine, W.T Carter & Co.	3	6	74	96	10	6	36	30	10	7	278	4	6	8	. . .	6	28	11	73	2	3	141	419

TABLE No. 7.—*Continued.*

MISCELLANEOUS COMPANIES.—*Continued.*

NAME AND NUMBER OF COLLIERY.	NUMBE OF EMPLOYEES INSIDE.											NUMBER OF EMPLOYEES OUTSIDE.											Grand total, inside and out.
	Mine bosses.	Engineers and pumpers.	Miners.	Miners' laborers.	Men timbering.	Road and repairmen.	Drivers and runners.	Men at top and bottom of slopes or planes.	Oilers and door-boys.	Men employed at other work, if any.	Total inside.	Breaker and screen bosses.	Hoisting and pumping engineers.	Firemen.	Machinists.	Carpenters and blacksmiths.	Breaker men in all capacities.	Drivers.	Slate-pickers.	Teamsters, choppers, stable-bosses, &c.	Superintendents, ass't superintend'ts, clerks, and book-keepers.	Total outside.	
Harleigh, M. S. Kemmerer & Co.,	1	1	76	43	4	3	11	7	5	2	153	3	4	4	2	7	24	2	84	5	6	141	294
Pond Creek, M. S. Kemmerer & Co.,	1	2	48	9		6	8	1	4		79	2	1	2	1	3	18	2	47	4	2	81	160
Black Ridge, B. R. C. Co.,	2	2	66	23		4	9	5	7	4	122	2	2	2		4	21	1	62	3	2	99	221
	16	26	633	525	26	41	171	89	71	55	1,653	25	53	52	7	71	293	47	675	56	36	1,313	2,966

RECAPITULATION.

A. Pardee & Co.,	14	11	474	171	36	38	78	23	30	19	894	26	24	25	9	55	247		364	37	11	798	1,692
Coxe Bros. & Co.,	8	22	347	215	81	74	137	40	22	221	1,167	20	22	39	20	52	116	12	382	47	21	731	1,898
Linderman, Skeer & Co.,	7	13	207	158	44	31	53	19	20	9	561	6	16	18	18	16	141	24	179	24	50	492	1,053
Lehigh Coal Navigation Co.	9	12	307	206	111	22	105	30	40	29	871	23	20	30	4	22	228	58	312	18	2	717	1,588
G. B. Markle & Co.,	4	15	375	51		26	72		36		579	8	4	15	22	12	113		169	19	24	386	965
Upper Lehigh Coal Co.,	5	8	144	126		13	44	17	3	3	363	8	10	11	5	11	42	6	110	9	9	221	584
J. Leisenring & Co.,	2	14	143	93		17	49	11	24	5	358	4	2	12	1	14	80	6	126	10	13	268	626
J. C. Haydon & Co.,	3	4	115	149	4	6	53	6	12	3	355	6	8	12	5	13	54	7	82	10	4	201	556
Pardee Bros. & Co.,	3	8	116	66	16	29	14	9	9	9	279	8	3	6	2	14	70	9	157	5	6	280	559
Ebervale Coal Company,	2	6	92	33	13	8	25	6	1	2	188	3	5	12	3	6	33	5	56	13	8	144	332
G. H. Myers & Co.,	3	5	68	42	5	8	16	8	4	63	222	6	5	13	2	11	20	4	97	4	3	165	387
Stout Coal Company,	1	2	42	12	4	4	10	8	5	16	104	2	5	5	1	6	28	3	40	3	3	96	200
Miscellaneous companies,	16	26	633	525	26	41	171	89	71	55	1,653	25	53	52	7	71	293	47	675	56	36	1,313	2,966
Men engaged at the several strippings,																						192	192
	77	146	3,063	1,847	340	317	827	266	277	434	7,594	145	175	250	99	303	1,465	181	2,749	255	190	6,004	13,598

TABLE No. 8.—*Gives the total number of tons of coal mined in each colliery, number of days worked, ratio of coal mined per day, number of employés, ratio of coal mined per employé, number of persons killed and injured, ratio of coal mined per person killed and per person injured, ratio of persons employed per fatal and non-fatal accidents, number of kegs of powder used, number of tons mined per keg, &c., for the year 1883.*

A. PARDEE & CO.

Name and Number of Colliery.	Total production of each colliery for the year 1883 in tons.	Number of days worked.	Ratio of coal mined per day in tons.	Number of employees.	Ratio of coal mined per employee.	Number of fatal accidents.	Ratio of coal mined per fatal accident.	Number of non-fatal accidents.	Ratio of coal mined per non-fatal accidents.	Ratio of persons employed per fatal accident.	Ratio of persons employed per non-fatal accident.	Number of kegs of powder used.	Ratio of coal mined per keg used in tons	Number of horses and mules at each colliery.
Hazleton Mine, Hazleton No. 1,	76 502	212.3	360.35	286	267.5			5	15,300		57.2	1,017	75.22	40
Laurel Hill, Hazleton Nos. 4 and 5,	117,377	232.7	504.41	262	448	1	117,377	13	9,029	262	20 15	1,810	64 84	35
Number Six, Hazleton No. 6,	154,731	244.7	633 14	234	661.2			4	38,683		58 5	2.595	59 62	23
Number Three Hazleton No. 3,	52.410	229.7	228.8	160	327.56	1	52,410	6	8,735	160	26.66	404	129.73	17
Sugar Loaf, Diamond Nos. 1 and 2,	45.118	217	207.9	156	289.2			7	6 445.4		22.28	339	133.09	22
South Sugar Loaf, Diamond No. 3,	50.503	211	241.74	138	366			4	12,626		34.5	1,250	40.4	17
Cranberry, Cranberry No. 1,	113 716	243.9	466.24	282	403.25			3	37,905		94	3,022	37.63	25
East Crystal Ridge, Cranberry No. 4,	48,794	196.2	248.7	94	518	1	48,794	6	8,132.3	94	15.66	692	70.51	13
Doing general work,														35
	659,151	‡223.4	2,950.5	1,612	408.9	3	219,717	48	13,732	537.33	33.58	11,129	59.22	227

COXE BROS. & CO., DRIFTON.

Drifton No. 1,	226,459.09	242	935.78	483	468.86			7	32,351.29		69	5,991	37.8	57
Drifton No. 2,	191.399.05	246	778.05	386	495.85	2	95,699.52	8	23,924.88	193	48.25	3,210	59.6	42
Drifton No. 3,	44.871.19	202	222.13	103	435.73	2	22,435.59	1	44 871.19	51.5	103	553	81.14	8
Gowen,	88,893.16	233	381.51	268	331.69			6	14.815.52		44.75	1,874	47.4	23
Derringer,	74 240.03	*229	324.19	295	251.66			4	18,560		73 75	1,859	39.9	23
Beaver Meadow,	17,160.12	†45	381.54	212	80.98			2	8,584.56		166	147	116.8	21
	643,034.04	‡230.4	2,716.42	1,747	402 48	4	160,758.5	28	22,965.5	436.75	62.39	13,634	47.16	174

*Derringer began work February 24, 1883.

†Beaver Meadow began work October 25, 1883; therefore have not included it in making up the general average.

TABLE No. 8—*Continued.*

LINDERMAN, SKEER & Co., EAST SUGAR LOAF.

NAME AND NUMBER OF COLLIERY.	Total production of each colliery for the year 1883 in tons.	Number days worked.	Ratio of coal mined per day in tons.	Number employees.	Ratio of coal mined per employee.	Number of fatal accidents.	Ratio of coal mined per fatal accident.	Number of non-fatal accidents.	Ratio of coal mined per non-fatal accident.	Ratio of persons employed per fatal accident.	Ratio of persons employed per non-fatal accident.	Number of kegs powder used.	Ratio of coal mined per keg used in tons.	Number of horses and mules at each colliery.
Stockton No. 1,	119 487	236	506 3	108	1,106.36	1	119,487	2	59,743.8	108	108	1 380	86 58	9
Stockton No. 2,	77,629	240	323.45	187	415.13	. .	. .	. .	. .	. .	. . .	180	431 27	17
Stockton No. 3,	93 540	234	399.74	231	404.95	2	46,770	1	93 540	115 5	231	2,280	41.02	18
Stockton No. 5,	143 531	240	598	286	501.92	3	47,843.6	1	143,531	95.3	286	2 400	59 80	25
Humboldt,	84,121	230	365.74	164	512.93	. .	. .	1	84,121	. .	164	1.819	46.24	24
	518,308	‡236	2 196.22	996	531.05	6	86 384.6	5	103,661	162.6	195.2	8 059	64.32	93

LEHIGH COAL AND NAVIGATION COMPANY, LANSFORD.

Nesquehoning No. 3,	154,150	230.5	668.76	352	482.38	. . . .	. . . . .	14	11 001 7	. . . . .	25.14	1 260	123.3	51
Lansford No. 4,	118,541	204	581.09	280	423 37	. . . .	. . . . .	4	29 636	. . . . .	70	660	179.6	49
Lansford No. 5,	68,544	197	347.94	248	276.39	. . .	. . . . .	4	17,136	. . . . .	62	480	142.8	87
Lansford No. 6,	71,686	199	360.83	225	318.6	.	.	. . .	. .	. .	. . . .	240	298.6	31
Lansford No. 9,	61,251	127	482.3	363	168 73	1	61 251	. . .	. . .	363	. . . . .	1 560	39 26	49
Hauto Screen building,	. . .	. . .	. .	120		. .		. .	.		. . .	. .		3
	474,175	‡191.5	2,476.11	1.588	298.6	1	474,175	22	21,553.4	1 588	72 19	4 200	112.9	270

G. B. MARKLE & Co., JEDDO.

Oak Dale No. 1,	125,298	234	535.4	244	513 5	1	125 298	1	125 298	244	244	2,445	51	38
Oak Dale No. 2,	132,742	230	577 13	255	520.5	2	66,371	3	44 247	127.5	85	2 196	60.4	35
Highland No. 1,	131.771	227	580.5	267	493.5	.	.	.	.	. .	. . .	2,866	45.9	42
Highland No. 2,	109,257	212	515 38	199	549		. . .	6	18 209 5		33.16	1,796	60.8	32
	499,068	‡225.75	2,210.76	965	517.16	3	166 356	10	49,906.8	321 6	96.5	9,313	53.5	147

UPPER LEHIGH COAL COMPANY, UPPER LEHIGH.

Upper Lehigh No. 2,	152 329.11	144	1,057.8	329	463	1	152 329	2	76 164.5	329	164 5	2.739	55.61	45
Upper Lehigh No. 4,	237,739.15	295.7	805.9	255	803.98	1	237,739.15	1	237,739.15	255	255	4,373	54.37	42
	390,069.06	‡219 85	1,774	584	667.94	2	195 034	3	130,023	294	194.66	7,112	54.84	87

J. LEISENRING & CO., COUNCIL RIDGE.

Eckley No. 2,	200,390	247	811.32	347	577.4	1	200,390	2	100,195	347	173.5	4 083	49.08	48
Eckley No. 5,	199,043	236	843.4	279	713.4	. . .	. . .	7	28,434.8	. . . .	39.86	3,060	65	29
	399,433	‡241.5	1,653.96	626	638.04	1	399,433	9	44,382	626	69.55	7,143	55.9	77

J. C. HAYDON & CO., JEANSVILLE.

Jeansville No. 1,	111,758	244	458	253	441.7	2	55,879	5	22 351	136.5	54.6	2,040	54.7	35
Jeansville No. 4, Jeansville No. 7,	137,146	243	553	303	452.6	. . . .	. .	1	137,146	. . . . .	283	2,700	50.7	37
	248,904	‡246	1,011.8	556	447.7	2	124,452	6	41,484	278	92.7	4 740	52.7	72

PARDEE BROS. & CO., LATTIMER.

Lattimer No. 1,	75 716	228 8	330.9	193	392.3	. . .	. .	3	25 238	. . . .	64.3	. .	. .	30
Lattimer No. 2,	101.215	224.3	451.3	221	457.9	1	101 215	4	25 304	221	55.25	3 435	61.76	32
Lattimer No. 3,	35 120	154.9	154.9	145	242.2	.		1	35,120	. .	145		. .	8
	212,151	‡202 6	1 047	559	379.5	1	212,151	8	26 519	559	69.9	3 435	61.76	70

EBERVALE COAL COMPANY, EBERVALE.

Ebervale No. 2,	151,290.05	216 8	697.83	332	651.7	3	72,121	1	216,365	110.66	332	1,708	88 25	52
Ebervale No. 3,	65,071 16	158.3	411.09									740		
	216,365.01	‡187.5	1,154	332	651 7	3	72,121	1	216,365	110 66	332	2,448	88.25	52

TABLE No. 8—*Continued.*

G. H. MYERS & CO., YORKTOWN.

NAME AND NUMBER OF COLLIERY.	Total production of each colliery for the year 1883 in tons.	Number of days worked.	Ratio of coal mined per day in tons.	Number of employees.	Ratio of coal mined per employee.	Number of fatal accidents.	Ratio of coal mined per fatal accident.	Number of non-fatal accidents.	Ratio of coal mined per non-fatal accident.	Ratio of persons employed per fatal accident.	Ratio of persons employed per non-fatal accident.	Number of kegs powder used.	Ratio of coal mined per keg used in tons.	Number of horses and mules at each colliery.
Yorktown No. 5,	95,144	234	406 6	180	528.6	1	95.144	4	23 786	180	45	1 600	59.4	19
Yorktown No. 6,	103,032	240	429.3	207	497.7	1	103 032	3	34 344	207	69	1,706	60.3	21
	198,176	‡237	836 2	387	512	2	99 088	7	28 311	193.5	55.28	3 306	59.9	40
STOUT COAL COMPANY, MILNESVILLE.														
Milnesville No. 5, Milnesville No. 7,	93,582	235 3	397.7	200	467.9	1	93,582	1	93 582	200	200	924	101.27	28
	93,582	‡235.3	397.7	200	467 9	1	93,582	1	93,582	200	200	924	101.27	28
MISCELLANEOUS COAL COMPANIES.														
Hollywood, C. Pardee & Co.,	149,437	‡230	649.72	264	566.05	2	74 718	3	49.812	132	88	2 162	69.15	45
Mt. Pleasant, Pardee Sons & Co.,	190.837	‡231.9	822.92	462	413.07	1	190,837	7	27,262	462	66	4 451	42.87	50
Sandy Run, M. S. Kammerer & Co.	188.418	‡230.6	817	396	475 8	. . .	. .	. . .	. .	. . . . .	. . . . .	3,423	55	54
Beaver Brook, C. M. Dodson & Co.,	82 250	‡174	472.7	181	454.42	1	82.250	1	82,250	181	181	1,221	67.36	24
Treskow, L. & W. C. Co.,	148 402	‡219.7	675 48	330	449.70	3	48,134	4	37.100	110	825	3 022	49.10	25
Buck Mountain, B. M. C. Co ,	75,152	‡165.7	453.5	239	314.44	. . . .	. . . . .	1	75,152	. . . . .	239	2.033	36 96	51
Colerain, W. T. Carter & Co.,	169.469	‡245	691.8	419	404.52	. . .	. .	. . .	. .	. . . . .	. . . . .	3.270	51.83	52
Harleigh, M. S. Kemmerer & Co.,	66.801	‡148.5	449.84	294	227.21	1	66 801	6	11,133	294	49	1.371	48.72	30
Pond Creek, M. S. Kemmerer & Co.,	39,486	‡238	165.9	160	246 8	1	39,486	3	13,162	160	53.3	1.291	30.5	11
Black Ridge, B. R. C. Co.,	4,072	‡12.5	325.75	221	18.42	. . .	. . .	. . .	. . . . .	. . . . .	. . . . .	105	38 78	16
	1,114,351	209.2	5,326.7	2,966	375.7	9	123 817	25	44,571	329.55	118.64	22,349	49.86	358

RECAPITULATION.

A. Pardee & Co.,	659,151	223.4	2,950.5	1,612	408.9	3	219,717	48	13,732	583.33	33.58	11,129	59.22	227
Coxe Bros. & Co.,	643 034	230.4	2,716.42	1,747	402.48	4	160,758	28	22,965	436.75	62.39	13,634	47.16	174
Linderman, Skeer & Co.,	518,308	236	2 196.22	976	531.05	6	86 384	5	103,661	162.66	195.2	8,059	64.32	93
Lehigh Coal and Navigation Company,	474,175	191.5	2 476.11	1,588	298.6	1	474.175	22	21,553	1,588	72.19	4,200	112.9	270
G. B. Markle & Co.,	493,068	225.75	2 210.76	965	517.16	3	166,356	10	49,906	321.6	96.5	9,313	53.5	147
Upper Lehigh Coal Company,	390,069	219.85	1.774	584	667.94	2	195,034	3	130,023	294	194.66	7,112	54.84	87
J. Leisenring & Co.,	399,433	241.5	1,653.96	626	638.04	1	399,433	9	44,382	626	69.55	7,143	55.9	77
J. C. Haydon & Co.,	248 904	246	1,011.8	556	447.7	2	124 452	6	41,484	278	92.7	4 740	52.7	72
Pardee Bros. & Co.,	212,151	202.6	1,047	559	379.5	1	212,151	8	26,519	559	69.87	3,435	61.76	70
Ebervale Coal Company,	226,365	187.5	1,154	332	651.7	3	72,121	1	216,365	110.66	332	2,448	88.25	52
G. H. Myers & Co.,	198 176	237	836.2	387	512	2	99,088	7	28 311	193.5	55.28	3,306	59.97	40
Stout Coal Company,	93.582	235.3	397.7	200	467.9	1	93 582	1	93.582	200	200	924	101.28	28
Miscellaneous Companies,	1,114,351	209.2	5,326.7	2,966	375 7	9	123,817	25	26,519	329.55	118.64	22,349	49.86	358
	5,666,767	*221.9	25,537	13,098	484.5	38	149,125	173	32,756	357.84	78.60	97,792	57.9	1,695

‡ Average days worked by each company.
* General average days worked in this district, which is about three quarter time.

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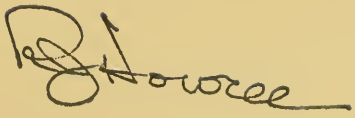
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